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ANTISEPSIS IN ABDOMINAL OPERATIONS.

*SYNOPSIS OF SERIES OF BACTERIOLOGICAL STUDIES BY DR. CHRISTIAN FENGER AND DR. BAYARD HOLMES.

THESE investigations were undertaken to determine how far the necessary aseptic conditions had been secured and maintained in the abdominal sections performed by Dr. Christian Fenger. One case of another operator is brought in to compare less thorough antiseptic precautions.

In order to estimate the results of these researches, we must know what preparations were made for the operation on the part of each concerned.

THE PREPARATION OF THE OPERATING ROOM.

In the Emergency Hospital and in the County Hospital, the walls and the floor and all the furniture were thoroughly washed with a 1-1000 sublimate solution on the day before the operation. The cracks about the windows and doors were stuffed with cotton, and the room closed to every one except the nurse that made the preparations.

To test the condition of the atmosphere in this room in the Emergency Hospital, four plates of gelatin were exposed for 48 hours on the operating table, August 24 and 25, 1886. After six days' incubation in the moist chamber, from eight to twelve colonies of all kinds appeared on each square inch of surface. Most of these were moulds, which grew very rapidly; some were micrococci and some bacilli. As less than twelve colonies developed to the square inch, it is probable, if the plates were exposed only an hour instead of 48 hours, not more than one colony would be found on each four square inches. So that the danger of atmospheric infection from falling germs would be very slight under similar conditions. The danger would, no doubt, be increased by the movements of the assistants, and the increased circulation of air through the difference in temperature of the external and internal atmosphere when the room was in use.

THE PREPARATIONS OF THE OPERATOR AND ASSISTANTS.

Each took a sublimate bath (1-2000) and put on sterilized cotton suits. The

*This paper was read by Dr. Holmes before the Chicago Gynæcological Society, April 12, and the tubes containing the specimens exhibited.

hands and arms were then washed five minutes with warm water and green soap, and scrubbed with a brush, and then washed half a minute in a 1-1000 sublimate solution. The patient received substantially the same treatment.

THE PREPARATION OF THE SPONGES, SILK, INSTRUMENTS, GAUZE AND WATER.

The sponges were those prepared by Schorse, of Milwaukee.

The silk was boiled an hour in a 5 per cent. carbolic acid solution, and in some cases afterwards immersed in a solution of iodoform and ether and again sterilized by moist heat in a bottle stopped with cotton. This was done by placing the bottle in a pail containing an inch of water and boiling for an hour. The instruments were boiled an hour in a 5 per cent carbolic solution on the day before the operation and then dried. On the morning of the operation they were again boiled for a few minutes in a similar solution and placed in trays of sterilized water for use.

The water was sterilized by boiling in large tin cans, each holding 2 or 3 gallons, for an hour or more on three successive days. The cans had tin covers put on over a rim of cotton to stop the crack between itself and the can.

The culture medium used for these investigations was sterilized, alkaline, peptonized beef tea gelatin. Most bacteria will grow in this medium at the temperature of a living-room. Answers have been sought through these investigations to the following questions :

I.—*Are the sponges sterile when ready for use?*

After the sponges had been rinsed out in sterilized water three times, the assistant cut off small pieces from each of the sponges to be used with scissors, and they were put in a tube of liquified gelatin beef broth. This tube contains three such pieces of sponge surrounded by the clear solid gelatins.

Out of twenty-five sponges from seven operations only a single sponge was found infected with a single colony.

In this tube you will see the small triangular colony in the lower part of the upper sponge. With a small magnifying glass it seems to be a group of four or five spherical colonies in a cluster.

This sponge was used in operation xx., Nov. 30, sarcoma of the ovary, Emergency Hospital.

It would appear from this that the sponges are sterile at the beginning of the operations; and, if sterile, then of course aseptic.

II.—*Is the silk sterile?*

Five or six pieces of silk were usually taken from as many needles, and an inch cut off from each and put in a single tube of gelatin.

More than thirty such pieces were examined from nine operations, and not a single colony developed.

In no case was the silk infected at the beginning of the operation.

III.—*Is the cat gut sterile?* (*Schorse's carbolized cat gut.*)

Several pieces at four operations were examined. In one case only did any colonies develop. In this tube you see two pieces of cat gut at the bottom of the clear gelatin. Clinging to the side of one piece you can discover a small spherical white colony, and a little distance from it in the gelatin another similar colony. This cat gut was from a new bottle of carbolized cat gut used in operation 5, in a private house in the country. It is difficult to say how significant their presence is. They might arise from any one of following causes :

1. Imperfect primary sterilization of the cat gut.

2. Infection by floating germ or germs from the hands of the assistant when unwinding and cutting off the pieces.

3. Infection through transportation to and from the country.

4. Imperfect sterilization of the nutrient medium.

It is my own opinion that it is from infection through the second above named causes.

Thus out of over thirty tubes, con-

taining over sixty pieces of material taken before the operations, only *two* pieces were found infected with *three* colonies. This would indicate that the precautions taken are very successful at the beginning of the operations.

IV.—*Are the sponges sterile after they have been used?*

At the end of each operation, small pieces of each of the sponges used were cut off and placed in gelatin in the same manner as at the beginning. They were usually stained with blood, and sometimes had pieces of the contents of the cysts clinging to them. Thirty pieces from eight operations were thus examined. In this tube passed around, which contains two pieces of sponge from the last operation, No. 8, you see numerous colonies on the side of the upper sponge. They are spherical and whitish, and do not liquefy the gelatin. The following is the list of the sponges infected:

Operation 1. 5 sponges examined. 1 infected.

Operation 2. 2 sponges examined. 1 infected.

Operation 5. 4 sponges examined. 1 infected.

Operation 8. 2 sponges examined. 1 infected.

The sponges were generally sterile at the close of the operation, even though most of them had come in contact with the skin of the abdomen and the contents of the cysts.

It may seem strange that the sponges used in operation 4, pyo-salpinx, in which the cyst burst into the abdomen, in tearing it away from its adhesions, did not develop any colonies. Five sponges were examined, and all remained apparently sterile. From the pus in this cyst, cultures were made in solid blood serum with the growth of a small micrococcus usually in the so-called diplococcus form, but this microbe would not grow in gelatin beef tea.

V.—*Is the silk sterile at the close of the operation and after it has been used as sutures?*

Out of twenty pieces of silk, often cut from the ends of abdominal sutures, only a single piece was infected with a single coccus form, viz.: one of the two pieces taken from operation 1.

Over fifty pieces of material, after being used in operations, and only five pieces—4 sponges and 1 piece of silk—were found infected. It does seem, therefore, that the sponges and silk may be maintained sterile, so far as any germs that will grow in nutrient gelatin are concerned, even to the end of a long operation.

In marked contrasts to these results appear those from an operation performed by another operator who kindly allowed similar examinations. The details of the preparations were given for publication.

The operating room was well washed with soap and water, both walls and floors. It was in a new house which had never contained a sick person.

The sponges were part new and part old, having been used in a previous abdominal section. After that operation they had been soaked a day in a strong solution of bicarbonate of soda, and washed out in a 5 per cent. solution of carbolic acid and hung away in a bag. On the day before the operation all the sponges were boiled in a porcelain kettle for more than an hour in a 2½ per cent. solution of carbolic acid, and put into a jar and taken to the operating room. The silk was boiled and carried in the same jar. The operator took a bath and put on perfectly clean clothes on the morning of the operation. The assistants were instructed to do the same. The hands and arms of the assistants were washed in soap and water and then in a sublimate solution 1-1000.

The material examined consisted of four sponges and two pieces of silk before the operation, after the sponges were rinsed out, and the needles threaded, and of two sponges after the operation and several inches of the thread used. All the material was infected except one piece of silk examined at the beginning of the operation. Every

sponge had at least one colony of the hay bacillus, and one sponge after use showed more than 50 small white colors in the clear gelatin in the upper part of the tube.

What influence the asepsis of the material has on the results of the operations as to death or recovery, is a question far beyond the scope of these investigations. It would require a large statistical material of well observed cases, and more work than could be done by one observer. But it may be safe to conclude that it is desirable to work through an abdominal operation with perfect asepsis everywhere, if such a thing is possible.

The above investigations have shown that such perfect asepsis can be attained. Thus if we are ignorant of the extent of danger from non-sterile material, we are hardly justified in trusting to the innocence or inocuousness of such an uncertainty while we can have the asepsis of the material an absolute guaranty against the dangers of infection.

OPERATIONS PERFORMED BY DR. CHRISTIAN FENGER.

No.	Name of Operation and Date.	Complications.	Bacteriological Results.	Results as to Death or Recovery.
1.	Demoid of Ovary. Emergency Hospital. Nov. 9, 1886.	Bursting of cyst into the abdomen during operation. Irrigation.	1 sponge and 1 piece of silk infected after operation. 4 tubes used to examine 12 pieces of material.	Recovery. Development of properitoneal abscess, which was opened in the sixth week. Complete recovery.
2.	Cysto Sarcoma of left ovary. Emergency Hospital. Nov. 30, 1886.	Solid movable tumor 6 inches in diameter, only slightly adherent to abdominal organs. Metastatasis in peritoneum. Some acites present. Drainage.	6 tubes used to examine 11 pieces of material. 1 sponge before use and one sponge after use infected, each with a single colony.	Recovery.
3.	Radical Operation for Hernia. Emergency Hospital. Jan. 18, 1887.		8 tubes used to examine silk and sponges and cat gut. All sterile.	Recovery.
4.	Pyo-salpinx. Emergency Hospital. Jan. 19, 1887.	The Sac, adhering on all sides. Ruptured in removal. Irrigation of abdomen.	14 tubes of nutrient gelatin used. All sterile. *Contents of cyst planted in solid human blood. Serum developed diplococci of very small size, which do not grow in gelatin*, probably gonococci.	Death from acute sepsis within 48 hours.
5.	Double Demoid. Private House. Jan. 24, 1887.	The tumor of the left side had ruptured twenty years before, and produced an almost fatal peritonitis (?) This tumor was now large and adherent all around. The tumor on the right side was small and free.	9 tubes used with 25 pieces of material. One piece of cat gut infected with 2 colonies. One sponge infected with a single colony.	Death from shock within 12 hours.
6.	Cyst of ovary. Emergency Hospital. Feb. 3, 1887.	7 tubes used to examine 10 pieces of material. All sterile.		Recovery.
7.	Cyst of ovary. Emergency Hospital. March 22, 1887.		2 tubes used to examine silk and sponges after operation only. All sterile.	Recovery.
8.	Malignant Cyst of broad ligament. County Hospital. March — 1887.		4 tubes used. All sterile.	Death from uræmia on the 5th day. Autopsy. Atrophic and dilated kidneys.
9.	Proliferating Cystoma of ovary. Emergency Hospital. March 24, 1887.	Large and adherent. Burst during removal. Irrigation of abdomen to remove cyst contents. Drainage.	5 tubes used, 12 pieces of material. Only one sponge infected with numerous colonies.	Death after 36 hours. Autopsy after 6 hours. Thrombosis of right ventricle. Bloody serum found in the peritoneal cavity in small quantities was added to nutrient gelatin. It remained sterile after two weeks' incubation.

CONTRASTED CASE PERFORMED BY ANOTHER SURGEON IN WHICH LESS SUCCESSFUL ANTISEPTIC PRECAUTIONS WERE USED.

Cysto-sarcoma of ovary. Private house. Feb. 22, 1887.	Very large, and adherent to omentum and abdominal wall. Drainage by means of two rubber drainage tubes.	9 tubes used for silk, and sponges all infected except one, containing silk, before the operation. The sponges, after use, contained many 50-100 colonies. Each of the eight infected tubes had at least one colony of the Hay Bacillus.	Death on the third day. No autopsy. At each daily dressing there was evidence of some oozing from the drainage tubes.

SOME POINTS IN LAPAROTOMY FOR VISCERAL INJURIES.

BY T. A. M'GRAW, M. D., DETROIT.

[Abstract of a Paper read before the American Medical Association, June 8, 1887.

IT is no longer necessary to urge theoretical reasons in justification of laparotomy for concealed wounds of the abdominal viscera. There are already a sufficient number of successful cases on record to establish the operation as one of recognized merit, and that which now remains to do is to decide upon those technical details, attention to which can alone make the procedure generally successful.

In this paper I shall limit myself strictly to the study of such penetrating wounds of the abdomen as are caused by stabs, punctures and gun shots, omitting all consideration of contused, lacerated and incised wounds. I shall have to deal then, only with such wounds as are distinguished by small external openings, leading into narrow channels, and which are therefore characterized by great and necessary obscurity in diagnosis. Even with these limitations the subject is one of great scope, requiring study from many standpoints. The anatomy of the abdomen and its viscera must be studied with an especial view to operations for the repair of injuries. The very shape of the belly, as it changes in repose and action, may have a decided influence in determining certain practical points. The course of a bullet or weapon through the body and the deviations of missiles from the straight line have to be carefully studied for purposes both of diagnosis and treatment, and the symptoms caused by the various injuries of various organs demand attention. The relations of the external wound and that through the abdominal wall to the internal injuries, the place and character of the incisions to be made by the surgeon through the abdominal wall, the treatment operative or otherwise of the injured viscera, the methods of controlling hæmorrhage and the discrimination of cases which require operations from those in which operations are unjustifiable, are all subjects new as yet to the profession, which give opportunity for much difference of opinion, and which therefore are properly open to discussion. I shall not attempt, however, to do more than to discuss a few of the very many points which would present themselves to the surgeon in relation to this subject.

We may divide the viscera of the abdomen into classes from many different standpoints. They may be divided, first of all, bytheir relations to the peritoneum ; some being completely invested by that membrane while others are either incompletely invested by it or lie altogether without its folds. Wounds of the one kind are marked by extravasations into the peritoneal cavity; those of the other by extravasations into the cellular tissue. We may further divide them into solid and hollow. Solid organs, when injured, may pour into the surrounding spaces their own peculiar secretions and blood from their broken vessels. The hollow viscera may, in addition, pour into the peritoneal cavity or cellular inter-spaces, quantities of foreign matter, which may be undergoing the changes of fermentation or decomposition. Injuries of the solid viscera may cause death by shock, by hæmorrhage, by traumatic inflamations and abscesses, and by suppression of an essential secretion. The injuries of certain of the hollow organs, and especially of the alimentary canal and urinary bladder, may, in addition, cause danger from the septic organisms, which they sometimes contain in great numbers, and which are, in case of injury, let loose upon the defenceless portions of the organism.

While both of these divisions are of certain practical importance, I shall nevertheless discard them in this paper for one which I consider to be of prime importance to the practical surgeon. I shall divide the abdominal viscera according to the degree of mobility which they are permitted to exercise in the abdominal cavity. We find in this respect the greatest differences in the various organs; for, while some—like the ilium and jejunum—have a range of motion which permits them to be drawn to almost any point in the abdominal cavity, others—like the extra peritoneal portions of the duodenum—are bound down to a very limited area. While no one organ can, strictly speaking, be said to be absolutely immovable, nevertheless the motion permitted to certain organs is so small as to be practically of no value. I shall therefore divide the abdominal viscera into the movable and immovable, using these terms relatively and not absolutely, and I shall hope to show in the course of my argument that the two classes require to be so differently considered, when made the objects of operative procedures, as to warrant this mode of classification.

The movable viscera are the spleen, pyloric ends of the stomach and duodenum, the transverse colon, the ilium and jejunum, the sigmoid flexure and the ovaries.

The immovable viscera are the liver and gall bladder, the kidneys and supra renal capsules, the cardial portion of the stomach, the lower three-fourths of the duodenum, the pancreas, the ascending and descending colons and rectum, the uterus and bladder. That even in physiological conditions there are great variations in the mobility of these organs in different people is well known to everybody, while the changes in the length of their ligamentous attachments in conditions of disease are often such as to produce persistent dislocations. Generally speaking, however, and having a special reference to visceral injuries and not to visceral diseases, the lists as given above would be correct.

If we consider the mobility of these organs separately, we may say that the ligaments of the spleen are usually long enough to permit it to be brought over to the median line without great difficulty. The stomach as a whole is quite an intractable organ. It is held firmly in place by the attachments of its cardiac portion, which is always an inaccessible portion of the viscus. The pyloric portion, on the contrary, and the first parts of the duodenum can be moved freely over a pretty large area. The liver, notwithstanding some notable exceptions, is quite solidly fixed in its place under the ribs by short, unyielding ligaments, and the gall-bladder, though more accessible than the bulk of the liver, is scarcely more mobile. The lower portions of the duodenum are not only solidly fixed in their position by the layers of peritoneum which bind them down, but are also among the most hidden and inaccessible of all the abdominal entrails. This gut has no mesentery, and for the most part lies behind the peritoneum. The liver and colons, meso-colons and mesenteric vessels obstruct the operator who is obliged for any reason to get at its interior surface. The pancreas is immovable. The transverse colon is classed among the movable viscera; its range of motion, however, is confined to one direction; its center may often be depressed nearly to the pubis and elevated to the ensiform process, but it can not be moved very far in a lateral direction, on account of the immobile condition of the ascending and descending colons with which it is continuous. When these colons are bound closely to the abdominal wall, the transverse colon has almost no capacity for lateral displacement. When the ascending and descending portions have long meso-colons, the capacity for lateral displacement may be considerable.

The kidneys are of course immovable in their normal conditions. The ascending and descending colons lie in some persons behind the peritoneum and have no mobility whatever. while

in others they are partially invested by that membrane, and in others still they have short meso-colons. Even in these last mentioned cases they can be drawn with great difficulty to the median line. The sigmoid flexure and coecum are usually movable with a somewhat limited range of motion, while the rectum and uterus, except in pregnancy or diseased conditions, are usually fixed in place. The urinary bladder may be distended until its upper portion reaches nearly to the navel, but its lower part is quite out of reach from an abdominal wound.

The most movable of all the viscera are the jejunum and ilim, which can be drawn at pleasure to almost any part of the abdominal cavity.

That which makes this one quality of mobility or immobility of such importance to the surgeon is, of course, the necessity under which he labors of making his incisions in the abdominal wall, in case of operations on any viscus, in such a way as to make that viscus accessible. It may be regarded as one of the misfortunes of the surgery of intestinal wounds, that thus far the rules which have been established for the guidance of the surgeon in these cases have been founded on relations which concern only the movable viscera, while those of the immovable have been overlooked or ignored. Of the practical bearing of these anatomical relations I shall presently speak, after a short consideration of the nature of the wounds with which we have to deal.

Stabs and punctures are wounds made by daggers or other long, pointed, thin instruments and are characterized by small orifices and long narrow canals. They may be limited to the abdominal walls or penetrate into the abdominal cavity and injure the abdominal viscera; they vary in depth according to the length of the instrument and the force with which it is impelled. A short weapon may, however, make a very deep wound if the blow is struck with great force. The abdominal walls, yielding to the impulse, are indented by the weapon, and the resulting wound may be altogether disproportionate in depth to the length of the blade which inflicted it. Stab wounds are usually straight, although the blade before its withdrawal may sweep around the circumference of a circle whose center is represented by the external wound; the narrow orifice may then lead into a wide and destructive wound. While one orifice means that the blade has entered but once, two orifices may either indicate two stabs, or that the one thrust has transfixed the abdomen. If the circumstances are such that the surgeon can know that the two orifices are due to the one thrust, they will then be an invaluable guide to the direction of the wound. The wounds inflicted on the viscera by stabs may be either incised or punctured. Only in rare cases when a dull weapon has been thrust into the abdomen with great force could such a wound be either contused or lacerated.

Gun-shot wounds differ from stabs and punctures in the character of the injury done to the parts and in the greater uncertainty which pertains to the course of the bullet. The size of the missile makes a vast difference in the gravity of the wound, and for this reason the experience gained in war from the destructive effects of rifle bullets on the intestines may not be accepted as an absolute guide in the prognosis when we have to deal with the smaller missiles fired from revolvers and pistols. One wound means of course that the ball is still lodged in the body. The rare exception to this rule is the entrance of a spent ball into the body together with a portion of the clothing and its subsequent withdrawal with the clothing. It might also mean that the surface of the body had been just touched by a glancing ball. Two or more orifices may be made either by one ball passing in and out or by two or more balls, or by one ball, of which broken portions have escaped. When it is certain that only one shot has been fired, two orifices usually indicate the

apertures of entrance and that of exit. They do not necessarily indicate, however, that the ball has passed in a straight line from one to the other aperture, for the deflection which it may suffer from the numerous obstacles which it meets may make its course more or less tortuous. These wounds have, indeed, become notorious for their irregularities, and there are many authentic histories of gun shots which have traversed the body in ways so erratic and peculiar as to defy explanation. The study of these cases has produced a faith in their lawless character which is hardly justified by the actual facts. It has indeed so excited the professional imagination as to warp the professional judgment. Putting all fable aside and studying the cases as they have really occurred, we will find that the course of a gun shot is determined by laws as rigid as any to be found in physical science. The deviations which it can make in its passage through the tissues are neither as many nor as great as are popularly supposed, and many so-called deflections are not deflections at all but merely a secondary tortuosity of the wound caused by changes in posture. It may be stated as a general rule, which nobody will probably dispute, that the resistance which can deflect a gun shot from its course must be at least commensurate with the force with which the missile strikes the deflecting surface. It will always be deflected at an acute angle and never at an obtuse or right angle. As regards the size of the angle, the general law will of course prevail that the angle of incidence and angle of reflection will be equal, but this law will be modified in its action by many circumstances, but especially by the peculiarities of the substances upon which the missile strikes. A hard substance like bone may deflect a ball either at a large or at a small angle, or it may partially break and then deflect it, causing complex conditions. A soft and yielding tissue, however, cannot offer sufficient resistance to a gun shot, even though nearly spent, to deflect it, except when it strikes the surface at a very small angle. When the angle is at all large, the momentum of the ball overcomes the resistance and the tissues are penetrated. For this reason balls which run around the body in the abdominal wall always strike it at at a very acute angle, become deflected even when penetrating the skin, and thenceforth until their exit continue to be deflected by the overlying integument at angles so exceeding minute that the whole course of the ball comes to represent a circle of large radius, even then the resistance is finally overcome and the missile escapes. Whether such tissues as form the human intestines, or the softer tissues of the human body, can ever appreciably change the course of a bullet, is with me a matter of great doubt, for the resistance which they can offer is so very small that they must either slip aside or suffer penetration. I am aware that I have the authorities against me in this matter, but the *a priori* considerations against this hypothesis are so strong, and the facts upon which it is founded are so easily explained by other and more reasonable hypotheses, that I feel compelled to regard it as, at least, an unproven theory. It must be conceded that the mere fact that a ball which has pursued a somewhat tortuous course in the body has bruised an intestinal coil without breaking it, does not prove that that intestine deflected the ball. The apparent deflections of the ball may be explained far more easily by the assumption of a subsequent change in the relative positions of the tissues. I think few men, even though medical men, realize how mobile is the abdominal wall and how various are the shapes which it may assume. Accustomed to its rounded form and to the even rythmic motion of breathing, we are apt to forget that every muscle is capable of a separate and individual action, which may altogether alter the shape of the whole. If we observe naked men in violent

exercise, such as wrestling, it becomes apparent that the shape of the abdomen in action is ever changing. Now it is flat and again it is round, or one side is flat and the other is round, or one portion is raised and another depressed. The history of phantom tumors indeed, with their deceptive tume factions, is sufficient to show of what the abdomen is capable. Now men are shot often when engaged in violent struggles, and there can be no doubt at all that many a gun shot which has passed through the tissues in an absolutely straight line has been described as deflected on account of subsequent changes in the shape of the body. The only possible way to prove conclusively the power of the human intestines or other similar tissue to change the course of a ball would be to establish the facts by experiments instituted outside of the body, where the influence of all modifying forces can be carefully estimated. It is highly important, in any event, to remember that a soft tissue can not possibly deflect a ball at any but a very acute angle. The human skin is a very tough tissue, but the histories of hundreds of cases in which a ball, striking it at an angle so small that the course of the ball must have been all but parallel to the surface, has nevertheless penetrated it instead of glancing off, will sufficiently show how impossible it would be for that or any softer tissue to escape penetration if the angle of incidence were very appreciable. If this theory is correct the deflections of living balls from the straight line, measured as they must be by very acute angles, can never be very great in the short distance which they have to travel in the body, and in all probability those observations which would seem to prove otherwise should be explained on the hypothesis, not of a glancing ball, but of a subsequent shifting of tissues. Only when the missile strikes a bone can it glance off at an angle of good size. Many of the puzzles which surgeons have encountered are to be explained by the displacements of the dead ball, *i.e.:* of the ball whose momentum has been exhausted. It may then fall to the bottom of the cavity, follow the course of a canal, fall by gravity through the meshes of areolar tissue, or be carried along by muscular contraction. These changes of position do not affect, of course, the nature of the inflicted injury.

A ball entering the abdomen from behind may immediately, after entering the body, strike a bone and glance off at a considerable angle. The aperture of entrance and exit therefore of missile from that direction throw little light on the course of the ball. It is otherwise with those which enter on the front or lateral surfaces of the abdomen. Missiles from in front or the side may deviate, it is true, from their course, and these deviations make it impossible to tell from an examination of the external wounds what organs may have been injured underneath. In this statement I am perfectly agreed with Dr. Parke and other authorities. Unfortunately, however, it has been assumed that because the situation of the aperture and the inital direction of the wounds cannot determine the actual course of the ball through the tissues, therefore the study of these points is of little value to the surgeon as a guide in his operations. I cannot but regard this as a great practical error.

It is true that the exact course of a bullet in the abdomen cannot be determined prior to the operation, but it is not true that its approximate course may not be laid out with sufficient accuracy to guide the surgeon in his external incisions.

The tissues which can deflect a ball entering the abdomen from the front or side are, 1st, those of the abdominal wall, and, 2d, those of the abdominal cavity. When once the ball has traversed the cavity and struck the opposite wall, its power to injure the abdominal viscera usually ceases. There are, of course, exceptions to this rule, where a ball passing obliquely through

the abdomen strikes upon a rib and glances to enter again into a viscus, but these exceptional cases are rare. Now the greatest deflection suffered by such a ball before it escapes from the abdominal cavity is that caused by the skin and muscular walls. Should the missile enter these walls at a very acute angle it may run around the whole abdomen and not once enter the cavity. When once it has passed through the abdominal wall, its further course is through soft and unresisting tissues from which it can be deflected, if at all, only at a very acute angle. The course of the ball then from the point where it enters the cavity to that where it makes its exit from it must be nearly in a straight line. Now a careful study of the histories of many gun-shot wounds of the abdomen in which the ball has entered from the front or at the side has convinced me that the course of a bullet through the cavity and its wall lies almost always in the same plane, so that a plane projected to any three points in its course will have within its limits the whole path of the missile. I do not mean to be understood, in saying this, that the path and the plane would coincide with a mathematical exactness, but that their coincidence would be near enough for all practical purposes.

The especial purpose of these studies is to determine, if possible, how the surgeon can best make his incision through the abdominal wall so as to arrive easily and quickly at the seat of visceral injury. The best men in this department of surgery have already agreed where the incision should be made and where it should not be made. Parke, Dennis, Bull, Morton and Nancrede all lay down the law to the effect that the incision must be made in the linea alba, and that the wound must not be enlarged nor disturbed except for purposes of exploration. I have as yet sought in vain for any adequate explanation of this rule, although the unanimity with which it has been adopted is something marvelous when we consider the independence which surgeons manifest in other departments of surgery.

Parke states positively "that primary abdominal section in the mid-line gives the best command over the damage done and furnishes the most feasible opening through which the proper surgical treatment of such damage can be instituted." "The wounds of entrance and exit of the bullet *should not be disturbed* in any manner except to control bleeding or remove foreign bodies when present. They need only to be covered by the general anti-septic dressing applied to the abdomen." And Dennis says: "The incision should be made in the median line. Any deviation from this rule is objectionable in many respects. The side incision does not permit the free exploration of the cavity, involves also dividing planes of muscles, the hæmorrhage form, which is troublesome to control, and the primary union difficult to secure. The median incision divides no vessels of any importance, passes through the linea alba, which can be securely sutured, and is not likely to give rise to ventral hernia." "The enlargement of the original wound for an examination of the peritoneal cavity will not enable the surgeon to exclude in all cases faecal extravasation, perforation, volvulus or hæmorrhage." And Dr. Nancrede solemnly warns the practitioner never to enlarge the original wound unless it is located in the linea alba.

I confess that I have been unable to recognize in these arguments that decisive logic which solves all doubts, and I find myself in that most depressing of all situations, in a minority of one. *Why* should the wounds of entrance and exit never be disturbed? *Why* should the incision never take in the original wound unless that chance to be in the median line? *Why* may not the surgeon explore the abdomen with sufficient thoroughness by a side incision, if he make it long enough? There is no point in the abdomen through which

an incision cannot be made as long as the linea alba in a straight line, if the surgeon chooses. Muscular hæmorhage may be troublesome, but it is not usually difficult to stop, and incisions through muscular tissues heal by first intention, as those gentlemen can testify who have had experience in operations on the stomach, in which the incisions have been made parallel to the ribs through muscular planes. I have yet to learn that those operations have been followed by an undue number of ventral hernia. But while the reasons adduced for forbidding all but the median incisions are not convincing, there are many very cogent reasons for departing from that rule in many cases. Take for instance the case of any one of the immovable viscera. It may not, in case of injury, be possible to reach such a viscus from the median line, except by an enormous incision, and it may be possible to reach it by a short cut if made in its neighborhood. Are we prepared to accept the doctrine that a cut of twelve inches in the linea alba is less dangerous than one of four in the muscular wall? I had myself, last winter, a case of gun shot of the ascending colon and coecum which will illustrate this point.

Maggie McMahon, aged 24, was shot in the abodmen, at three o'clock on Tuesday morning, Dec. 21st, 1886. She was carried to St. Mary's Hospital at half past eight o'clock, and I saw her at nine o'clock on the same morning. I found her vomiting bile, and complaining of great pain. Her pulse was 120 per minute, her respiration 30 and her temperature 120° F. The bowels were moderately bloated and very tender, and two inches above and two inches inside of the right anterior superior spine of the ilium there was a gun-shot wound with black edges. There was no tympanitic resonance over the liver, no extravasation of faecal matter, no emphysema, and no general meteorism. The pain was located in the hypogastric right iliac and right lumbar regions. The wound was supposed to have been made by a ball from a revolver of 32 caliber, although that point was never fairly settled. At 12 o'clock, noon, I cut through the abdominal wall at the site of the wound, by making an incision of four inches long in the direction of the fibres of the external oblique muscle, the wound being in the center of the incision. It was easy to trace the wound into the abdominal cavity by the discoloration of tissues, and it soon became evident that the ball had passed from before backwards, and from above downwards, into the peritoneal sac. My finger, on entering the cavity, immediately detected a hole on the anterior surface of the ascending colon, which I thereupon drew out on to the abdomen. This wound, from which faecal matter was constantly pouring, was an oval with its long axis transverse to that of the intestine. It was about half an inch long and a quarter of an inch wide. I sewed it up with a continuous suture of cat gut, in a double row, after Czerney's modification of Lembert's method. Searching then for the wound of exit, I found it also vomiting faeces directly behind at the junction of the meso-colon with the intestine. The meso-colon and meso-coecum in this case were long as the peritoneum, completely surrounding the gut. The ilium was united to the intestine on its inner and posterior surface midway between the two wounds. The second wound had its long axis also transverse to that of the bowel, and was sewed together in the same way as the first. This done, I was able to trace the track of the bullet down into the femoral canal before the external iliac and femoral artery, by a ragged opening in the muscle, but its course afterwards is a matter of great uncertainty. I carefully examined the small intestines without withdrawing them from the cavity, but found no other wound. The abdominal cavity was washed out and closed with wire sutures, and a drainage tube inserted The patient began immediately to improve, and her temperature fell a degree on the same day; she vomited less

frequently, and the ejecta contained only mucus and swallowed fluid. Her pulse fell to 100, but her temperature rose again on the second and third days to 102. After the third day the improvement was more marked, and after sixth day she ceased altogether to vomit, and her temperature fell to 99 and 100. The drainage tube was then withdrawn, without having discharged one drop of pus. Subsequently, however, a small superficial abscess formed in the track of the wound, and on the tenth day discharged a teaspoonful of pus. Her convalescence was thenceforth uninterrupted, and she left the hospital Feb. 2d suffering only from a lameness consequent upon the passage of the ball into the thigh. There were present at the operation, Dr. Perley, U. S. A., Dr. H. O. Walker, Dr. N. W. Webber, Dr. Shurley, Dr. Boise, Dr. Robbins and others.

Now in this case I called the attention of the gentlemen present to the difficulty which I should have experienced in reaching the wounds in the gut, and especially that one on its posterior surface, had I made the usual incision in the linea alba. It would have been simply impossible for me to have got at it without cutting from the ensiform cartilage to the pubes and eviscerating her, whereas with a short incision I was enabled with ease to perform the necessary manipulations on the bowel and to carefully examine all that was necessary of the small intestine. I have since several times on occasion of post mortem examinations endeavored to bring the ascending colon out through an incision in the linea alba as it would have to be drawn out for purposes of operation, and have every time found it to require a long incision, and even then to be a matter of great difficulty. Here, then, was one case, at least, in which a great error would have been committed by adhering to the arbitrary rule of median incision. But that which was found true of the ascending colon would be found to apply equally to the descending colon, stomach and liver. There is no way in which an immovable viscus can be made so accessible as by an incision parallel to its long diameter.

Even in operations upon the pylorus, which is quite free and movable, many surgeons have preferred the transverse or oblique incisions to that in the linea alba, because, as Wolfler says, 1st., The diseased portion is more readily got at; 2d, the remaining portions of the stomach can be more easily examined; and 3d, the existing adhesions to the peritoneum can be more easily excised. And besides these, for the further reason that the intestines are less readily prolapsed than in the median incision (Dr. E. Kuh, Langenbeck's Archives, 27th Vol., 24th part.)

How much more, then, than in excisions of the movable pylorus, is the transverse or oblique incision indicated, in those gun-shot wounds of the stomach in which both walls are perforated, and in which the posterior wound may lie very near the cardiac orifice. In such cases, the incision perpendicular to the long axis of the organ puts the surgeon to a great disadvantage, while a cut transverse or oblique or even slightly circular under the ribs enables him to expose the whole organ and draw it out into view. The perpendicular cut in the linea alba in case of gun-shot wounds of the liver enables the surgeon to feel the liver's edge and to pass his fingers for a short distance over its surfaces. He can neither examine the organ as a whole nor inspect its lower surface, while a transverse cut just below its edge will bring the whole viscus into the field of operation and enable him to operate even on its under surface. Let us apply these principles to gun-shot wounds. The first points to determine are whether the wound is a penetrating wound, and if so, what viscera have been hurt? Without discussing the question of diagnosis, on which I have nothing new to offer, I will say that it is generally conceded that there is no other way to determine the question of penetration except by following the

track of the ball until it either enters the abdominal cavity or leaves the abdominal wall; or if the track is too long, then by boldly opening the abdomen elsewhere for purposes of exploration. The question of whether to follow the one or the other of these procedures must be left to the judgment of the surgeon. It is evident that one could not follow the track of the ball if it lead across the whole width of the abdomen. It is equally clear that one ought not without due cause, to open the peritoneal cavity. Probably the best rule to follow is for the surgeon, in cases of doubt, always to begin his work by exploring for a short distance the track of the ball. If, then, it leads him quickly into the abdominal cavity, he learns that fact and can proceed accordingly. In any event, he learns the initial direction of the missile and can form some judgment as regards its further course. I think that the profession have undervalued the practical worth of the knowledge thus acquired. The conviction has been so strong that the ways pursued by gun-shots were utterly erratic and unaccountable that surgeons have come to discard all indications as of no service in actual diagnosis. This extreme view is certainly not justified by any larger experience. That no man can say before exploration exactly what organs are wounded is certain, but any surgeon with good judgment, after a careful examination of the course of the ball through the abdominal wall, can say about where the missile is gone and what viscera it may have hit. The course of a ball from the time it enters the abdomen until it strikes the opposite wall *must* be nearly in a straight line, for the reason which I have mentioned, and if it were not for the shifting of tissues and changes in shape which occur subsequent to the shooting, comparatively little difficulty would be experienced in tracking the bullet. As it is, the initial course of the ball reveals much that is of inestimable advantage to the operator. If a bullet enters two inches to the right of the navel and passes from left to right and downards and backwards, the surgeon knows positively that it has not hit the spleen, nor the stomach, nor the liver, if these organs are of normal size and in normal position. He knows absolutely, too, that such a ball could not possibly hit any organ which did not, at the time of the shooting, occupy a position downward, backwards and to the right of the aperture of entrance. In this hypothetical case, it might hit the transverse colon, or the small intestine, or the ascending colon, or coecum, or a mesentery, or meso-colon, or some blood vessel. Now an incision through the abdominal wall, beginning at the wound and carried a sufficient distance downwards and outwards in the line of its track, would suffice to enable the surgeon to examine every organ injured and to repair every injury. Every injured viscus could be brought into the wound and no viscus which could not be brought into the line of the incision could possibly have been injured by the missile.

The rule, which seems to have met the general approbation, that every inch of small intestine must always be examined in a gun shot wound of the abdominal cavity must surely be reconsidered. How, for instance, in such a wound as I have described, could the duodenum possibly be injured at its pyloric end? How, in a gun shot above the navel, in which the course of the wound passed from before and below, backward and upward, could the missile possibly come in contact with the lower part of the ilium? How, in any wound, could any viscus have suffered injury, which could not by gentle traction be brought into view through an incision, which, beginning at the aperture of entrance, uncovered the whole course of the ball? Let us take another hypothetical case, that of a gun-shot wound of the right hypochondriac region, in which the ball entering three inches above and two inches to the right of the umbilicus,

passes obliquely upward and backward. In this case, while it may not be beyond the bounds of possibility that a coil of the jejunum or ilium might be wounded, yet such an event would be extremely improbable, would it then be good practice for the surgeon to haul out these viscera into the cold in order to satisfy himself that a wound *did* not, which in the nature of things *could* not, exist?

Two cases from the current literature will illustrate this better than any hypothetical cases. In one case, a ball entered a little to the left and above the navel. With the accustomed indifference of surgeons nowadays to the course of the wound, the wound does not seem to have been examined in order to find out its direction. From the fact that the ball perforated both walls of the stomach and both walls of the duodenum, it is fair to infer that it passed from below and before upwards and backwards, and from left to right. Notwithstanding that it was utterly impossible for such a ball to injure any of the lower parts of the intestines, the whole intestinal track was examined down almost to the ileocæcal valve.

In case second, the ball entered over the ninth rib three and three-fourths inches to the right of the median line and four and a half inches above the navel (there must surely have been some mistake in these measurements), and was found one and one-half inches above the navel and eight inches to the left of the median line. It grazed the liver, perforated the stomach, wounded the small intestine in the left flank (the jejunum) and lacerated the left kidney. The surgeon subjected the entire bowel from the stomach to the sigmoid flexure to a close examination, but why? The lower portions of the duodenum, the greater part of the ilium, the ascending colon and cæcum and the lower part of the descending colon and sigmoid flexure could not possibly have lain in the course of the ball. Both of these cases died, and it may not be impertinent to ask if the unnecessarily prolonged manipulation and exposure of the intestines had anything to do in causing their deaths? I do not wish, in criticising these cases, to be understood as reflecting in any way upon the practice of the two surgeons, both of whom I greatly esteem. They were perfectly justified in their manner of operation by the prevailing professional public opinion. I wish, however, to express emphatically by opinion as to the utter senselessness of a rule which requires the surgeon to examine and expose viscera and portions of viscera which could not possibly, in the nature of things, have suffered injury. The only explanation, indeed, which I can make for its adoption is the queer belief, apparently prevalent in the profession, that a gun shot has the power to run around the abdominal cavity, regardless of all natural law.

It is curious how the adoption of a theory will influence men's ideas and practice. I believe it is a well established rule in abdominal surgery that the longer the incision the greater the danger. Lawson Tait's great success had been ascribed by some to his remarkable skill in operating through small incisions, and yet, in the matter of operating for intestinal wounds, surgeons have seemed to persuade themselves that it made no manner of difference whether the abdomen was split in the median line from ensiform cartilage to pubes. Dr. Morton says, indeed, that there *is* no harm in a long wound if properly treated. I must protest earnestly against this kind of teaching. There is harm in a long wound even though properly treated, and when the surgeon makes one longer than is necessary he thereby unnecessarily endangers the patient's life. It is not only that the danger of infection is greater in a long wound, but also the danger of shock, the danger of chill, the danger of prolonged ætherization, and the danger of exhaustion. I have had many a patient under my hands whose life or death

seemed to me to depend upon the time in which the operation could be got through with. I do not mean to say that the surgeon should ever allow himself to make an incision too short to accomplish his purpose. On the contrary, I strongly suspect that hitherto, while the incisions in the linea alba have been in some cases made too long for safety, those which have been made in the track of the wound have been too short to be effectual.

I have tried by studying the cases already published to come to some definite conclusion as regards the relations which are borne by the directions of the wounds in the abdominal walls to the wounds of the viscera underneath, but have failed to come to satisfactory conclusions on account of the defective character of the reports. In most of the reports the position of the wound is given, but its direction through the abdominal wall is altogether ignored—a circumstance which indicates forcibly the neglect into which this most valuable indication has fallen. Before we can, however, come to a conclusion as to what wounds demand median incisions, and what wounds demand incisions elsewhere, what wounds demand examination of the whole intestinal track, and in what wounds that tedious and dangerous examination can be dispensed with, we must have at our disposal large numbers of accurate records in which the position of the external wound, its course through the abdominal wall, its subsequent course through the cavity of the abdomen and its termination, together with all other details, are reported so exactly as to permit of critical study. In the meantime, every surgeon who operates must be left unhampered by arbitrary rules, to make incisions and to follow operative methods according as his judgment dictates in any individual case.

When the abdomen is opened the visceral wounds discovered must be repaired. In considering these repairs, we have to distinguish between those of the hollow and those of the solid viscera. Injuries of the intestinal wall must be invariably sutured with the Lembert suture. Many efforts have been made to improve this suture without success, unless Czerney's modification may be so considered. I have myself made very many experiments in this direction, which I will note here, for the purpose of pointing out a false way, into which some one else might blunder. I conceived the idea, after reading accounts of cases in which the Lembert suture had failed to hold the wounds together, that the intestine might grow together more rapidly and with a stronger union if the opposing surfaces were made raw by denuding them of their serous coverings. On the thick intestinal wall of the dog this is quite practicable. The serous membrane can be easily dissected with the finger nail from the muscular wall, and there will be left a thickness sufficient to hold a fine suture without having the needle pass through the mucous membrane. I operated on a great number of dogs after this fashion. Opening the abdominal wall, a gut was seized and brought to the surface. A circular cut was then made through the serous coat of the gut. This was dissected up on each side of the cut, and turned back like the cuff of a coat. It was wonderful to note the contractile power of the serous coat when freed from its attachments. It would then contract to half its previous dimensions. When the serous coat had been turned back, the intestine was cut through and the remaining walls cut partly away. The resected ends were brought together by sutures passed through the muscular layer alone, and then a second row through the shrunken and sometimes curled-up serous coat made the union secure. In some cases I, at the same time on the same dog, made two resections, one by this method and the other by Lembert's method, in order to compare the two kinds of stitches. The most of my dogs survived the operation, and as far as that goes my operation could be considered a success, but a

careful comparison between my own method and Lembert's proved conclusively the superiority of the latter. The serous surfaces not only healed together with less inflammation and suppuration than the raw, but the union could, after the same lapse of time, endure a greater strain.

Besides that, I satisfied myself on the cadaver that my method was quite impracticable on the thin-walled human intestine, and I abandoned it. I do not believe that any other method will ever supplant that of Lembert, and the only question is, which of the various modifications is most useful. I have adopted a continuous suture which I believe will make the patient nearly absolutely secure against any failure in union or extravasation of fæces. In the case I have just reported, I began the suture at a little distance from the end of the wound, by carrying the thread through the serous and muscular coats and then knotting it, leaving the end long. A continuous suture was then carried along the whole course of the wound and a third of an inch beyond it. The suture was then carried back at a higher level after Czerney's method until the point of beginning was reached, and then the thread was drawn tight and the two ends tied firmly together. It does not matter what kind of a continuous suture is used if the insertions of the thread are near enough together. The continuous suture is in my judgment better than the interrupted, both on account of its greater security and because it can be applied much more quickly.

There is another question in connection with these intestinal wounds, and that is, what wounds, if any, require resection of the bowel? Madelling had shown conclusively that any considerable destruction of the mesentery will insure gangrene of that portion of the bowel whose afferent blood vessels are thus destroyed. The case of Dr. Keen, reported at the last meeting of the American Surgical Association, corroborates Madeling's observations. If I understand his description, he found on post mortem examination, opposite the injury to the mesentery, a gangrenous spot as large as a five-cent piece.

Pending further experience on this point, we may say then that great injury of the adjacent mesentery may demand excision of that portion of the bowel with which it is in contact. I do not believe that any other form of injury can ever demand excision, or be treated by any other method as safely and successfully as by suturing the wounds. Even such multiple wounds as Parke describes, and for which he counsels excision, will heal perfectly well by simple suture. Some experiments made upon dogs by myself and my assistant, Dr. F. W. Robbins, will illustrate this point. My object in operating was to find out what could be done by suturing multiple wounds near to one another in a gut instead of resecting the gut. I therefore in each case drew out the small intestine and cut holes with a pair of scissors from one to two centimeters in diameter. In one case they were made six in number, on one and the same side of the gut. This animal recovered and was afterwards operated upon by having two holes cut, each a centimeter in diameter on opposite sides of the gut and directly opposed. He recovered a second time.

In a second animal four holes were cut near one another but irregularly placed. This animal got well.

A third, operated on on a dark day, died, and the sutures were found to have been imperfect. There were in all six operations followed by one death. In closing the intestine, it was drawn together in such a way that the edge of the wound was transverse to the long diameter of the gut. In this way, the lumen of the gut was enlarged instead of narrowed at the seat of injury, whereas if it had been made parallel to the longitudinal axis, the lumen of the intestine would have been lessened. If a wound were so located, however, that its edges could be brought together only in a longitudinal line, the surgeon could nevertheless close it in this way

without fear of obstruction. Mikulicz closed in one case the defect in the bowel by a longitudinal suture, which made a considerable narrowing of the gut at that point. The patient nevertheless recovered, and suffered no subsequent symptoms of obstruction. Few people seem to realize the elasticity of the intestinal wall. It will stretch, especially in a longitudinal direction, like india rubber, and this elasticity enables it to recover its tone and shape after injury and loss of substance. For this reason I must dissent from the practice which has been recommended of excising the intestine for multiple wounds. Where the interval between the two wounds is too small to permit the insertion of stitches, the bridge should be cut away and the two wounds turned into one. But, however many the wounds, they should all be sutured without resection and the operation of resection reserved for those cases in which the vascular connections of the gut have been widely destroyed.

Wounds of the solid viscera have not yet been subjected to sufficient experimental study to enable the surgeon to form an opinion as to the best method of treatment. I have, myself, operated on three dogs by incising the edge of the liver and closing the gap by deep sutures. The bleeding was not very considerable. I passed sutures of fine silk or cat gut deep into the liver substance and thus closed the wounds. On one of the animals, an operation was simultaneously performed on the stomach. This one died after 24 hours. The edges of the cut liver had become agglutinated. The other two recovered.

The slight consequences, comparatively speaking, which have followed incisions into the liver for abscess should give rise to good hope in case of a wound of this organ not involving the large veins. The treatment of such a wound should be either by suturing it finely and deeply with cat gut, or by stuffing the wound in the organ with iodoform gauze, and keeping the wound in the abdominal wall open for drainage. This last course was pursued successfully by Dr. H. Burckhardt, of Stuttgart. This surgeon was called on March 29th, 1886, to see a man who was collapsed from a stab it the mamillary line just below the ribs. As the patient was evidently dying of internal hæmorrhage, Burckhardt made a cut in the abdominal wall of 12 to 14 cent. in length, beginning at the wound; found the abdomen full of blood, the source of which proved to be a wound three cent. long in the left lobe of the liver. He stuffed iodoform gauze into the wound and stopped the hæmorrhage by compression. The patient recovered.

Whether a gun-shot wound of the kidney or spleen should demand excision of the organ is a question which further experience must answer. Wounds of the pancreas should be treated according to the principles laid down by Dr. Senn in his admirable monograph on that subject.

I shall in this paper discuss only one more question, that, namely, as to the class of penetrating wounds on which the surgeon should refuse to operate. The rule to perform laparotomy for penetrating wounds will surely be found to have many exceptions.

One of these exceptions may or may not be the wound of an empty stomach. A case from my own practice will illustrate this point.

Thomas J. Hilbish, a medical student, was the happy possessor of a revolver, which he was accustomed, at night, to keep under his pillow. He arose on the morning of July 17, 1879, and, for some reason, jerked the sheet from off the bed. With the sheet came the revolver, which fell upon the floor, and discharging one of its barrels. The ball struck Hilbish a little above and to the left of the navel, and its course was from below, upwards and, presumely, to the left. I was called and arrived within half an hour. He had then vomited blood and once again he vomited blood. He had eaten a light supper at six o'clock and had taken noth-

ing into his stomach since. The wound was not probed, but from the position in which he stood at the time of the accident, and which was described on the spot, I judged that its course through the tissues was from right to left, from below upwards, and from before backwards. He was put to bed, placed under opiates, allowed for several days neither to eat nor to drink, was fed and watered by enemata, and he recovered, not, however, without suffering from a severe traumatic peritonitis, during which he experienced great pain and his bowels became enormously bloated. In this case, there can be little question that the stomach was wounded, and that the time of injury in the early morning, when the viscus was empty, had everything to do with the subsequent favorable course of the wound. Dr. Keen's case illustrates probably (for the condition of the stomach, as respects its contents, is not noted) the same point. The girl shot herself at 6:30 A. M., and we may presume that she was then fasting. Dr. Keen especially remarks that there was no extravasation of the contents of the stomach and the wounds could hardly be discovered. The stomach is indeed much more tolerant of injury than is usually supposed. A remarkable case was that of Professor Von Mosetig, published in the *Vienna Medical Wochenschrift* of Dec. 18, 1886. On Nov. 17, 1886, a man of thirty-one years shot himself in the left side, the ball entering the fourth intercostal space a little outside of the nipple. There was no wound of exit, but in the back between the tenth and twelfth ribs there was a hard spot. The patient showed no gastric distress, no tenderness of the bowels and no vomiting. He had hæmatothorax on the left side and suffered greatly from dyspnœa. During four days he had no fever and ate heartily and regardlessly. On Nov. 21st he was seized with erysipelas of the face, from which he had on Nov. 30th recovered. He remained free from fever for the next two days, when on the third day a rise of temperature preceded the discharge through the wound of a large quantity of offensive pus and blood. The hard spot on the back was then opened and the bullet found and extracted. The finger extended here into a cavity containing a large amount of black putrid matter. No communication could be established between the two orifices, but when the patient vomited on awakening from the anæsthesia, he discharged from the stomach some of the permanganate of potash solution which had been injected into the wound. After that food was from time to time discharged through the posterior wound. The patient remained free from fever, but on December 8th died suddenly from causes not stated in the narrative. The adduction revealed a communication of the anterior opening through the cavum pleuræ, diaphraghm and left lobe of liver, with the stomach, both of whose walls had been perforated. Here, then, had been a frightful wound of the pleural cavity, stomach and liver, in which the only symptoms of trouble, during several days, had been those caused by hæmorrhage into the pleural cavity. Von Mosetig assumed that the stomach, at the time of injury, had been empty, and had quickly formed adhesions to the surrounding organs.

I have myself, in connection with Dr. Robbins, made a few experiments on dogs in order to determine the effect of wounds on an empty stomach. The dogs were all kept fasting for twenty-four hours, and then operated on by drawing the stomach out, stabbing it in one or more places and then returning it unsutured into its place. The wound in the abdominal wall was then securely sutured and the animal kept fasting for 48 hours with sparing allowance of water. Feb. 25, 1887.

Case 1st: Moderate sized dog, fasting for 24 hours. The stomach was drawn out and both anterior and posterior walls perforated simultaneously by passing a scalpel through them. This double puncture was made twice, with

an interval of half an inch. The stomach was then replaced and the abdominal wound sutured. The animal was then kept fasting, but was allowed a little water. After 48 hours he was fed on milk. He recovered without a bad symptom. The wounds through the stomach walls were about half an inch long.

Case 2d: Black dog, moderate size, fasting, was operated on as above, making, however, but one double wound. Died 24 hours after operation. There were found on post mortem evidences of great paritoneal congestion. In the abdominal cavity there was about an ounce of bloody fluid. The stomach was half filled with thin, yellowish fluid. The anterior wound had healed except that one corner, where there was an opening as large as a pin's head. The opening in the posterior wall, where the knife had been passed, had so thoroughly healed that even its location could not be discovered.

Case 3d. Feb. 26, 1887:

Dog of medium size, fasting, was operated on as before by grasping the stomach and transfixing both walls. This dog made a quick and complete recovery. The hole in the stomach was one cent. long.

Case 4th. Feb. 26, 1887:

Dog operated on as above, but the incision in both anterior and posterior walls measured half an inch. This dog recovered.

Case 5th. Scotch terrier. I operated on this dog as above, and besides cut a gash an inch long in the edge of the liver. He died in 26 hours. About three ounces of red fluid was found in the peritoneal cavity. The wound in the liver had become agglutinated outside, but not in the depths of the wound. The wound in the anterior wall of the stomach could not be detected from its peritoneal aspect, but the mucous membrane was marked by a linear slit. On the posterior wall, a discolored spot on the peritoneam showed the site of the wound, which, however, was closed, but the mucous surface had not healed.

It was astonishing to note, in the cases of death, how quickly nature had repaired most formidable injuries, for in both cases one of the wounds had healed so thoroughly by first intention that its site could be with great difficulty detected.

It can not be denied in the face of such evidence that wounds of the empty stomach, through perforating both anterior and posterior walls, may have a good prognosis, and yet I should hardly venture to say that the penetrating wounds, which are located in the region of the stomach and involve that organ, should be excepted from the general rule of exploratory laparotomy.

The difficulty of excluding injury of other viscera, and especially of the liver and colon, would seem to make abdominal sections imperative even in those cases.

When, however, from any other cause, the operative procedure should seem to be of doubtful propriety, the facts which I have just related might make the expectant treatment more jusifiable.

A condition which would seem to me to more positively forbid abdominal section is that of great obesity. The case reported by Dr. Britton illustrates one objection to operating on such cases, namely, the difficulty in performing the operation through several inches of fat. The surgeon in such a case is cramped for room in which to work, and is further hindered by the difficulty in distinguishing the various tissues within the abdominal cavity. This is so great in cases of vast intra-abdominal accumulations of fat that physicians are puzzled even in post mortems to distinguish the relations of organs. How much more so must be the case in operations during life in which the external incision must be limited!

There is, however, an objection, even more weighty, to these operations, and that is the difficulty of securing an absolute asepsis where the necessity of the case forces the surgeon to break an innumerable number of fat cells and to leave

n the abdominal cavity an immense quantity of disorganized free fat. With all that, he has to do with a patient who belongs to a class notorious for their slight powers of resistance to traumatism. For these reasons the outlook of operations, especially on persons in whom there are likely to be multiple wounds of the small intestines, is gloomy enough. I do not mean to say that such cases are to be always considered as inoperable, but that the accumulation of fat must be reckoned among the circumstances unfavorable to operative procedure.

The persistence of great shock, if only it could be distinguished from the collapse caused by internal hæmorrhage, should contra-indicate the operation for the time, but as the differential diagnosis between the two conditions is often impossible, the surgeon will frequently find himself in a dilemma, between the indications caused by a possible hæmorrhage or those caused by a possible condition of shock.

The occurrence of peritonitis, although of disastrous import, should not in itself, in my opinion, contra-indicate laparotomy.

In conclusion I wish to urge upon the profession the consideration of the following propositions, not as dogmas for adoption, but as theories and facts for discussion:

1st. There are many viscera in the abdomen which are practically immovable —so immovable as to forbid operations upon them through the median line. When a gun-shot wound is so located and so directed as to make the injury of an immovable viscus probable, the external incision should be made with reference to that fact.

2d. The course of a gun-shot wound is determined not by chance, but by the operation of immutable laws.

3d. When a gun shot is deflected from its course, it is always at an acute angle, and, when deflected by a very soft substance of little resistant power, the angle of deflection must be exceedingly small. When, therefore, a gun shot passes into the abdominal cavity, the deflection of the ball from the time it leaves the aperture of entrance until it strikes the opposite wall, can not be sufficient to appreciably alter its course.

4th. The initial direction of the ball through the abdominal wall indicates very nearly its subsequent direction through the abdominal cavity. The careful study of the wound of entrance is, therefore, of the greatest importance, and no surgeon should open the abdomen for the repair of visceral wounds without first exploring the wound of entrance sufficiently to make sure of its course through the parieties.

5th. The ball, after passing through the abdominal cavity, may be deflected by the bones or soft tissues; but as it, in the vast majority of cases, pursues the remainder of its course outside of the abdominal cavity, these deflections should have no influence in determining the line of incision.

6th. Gun-shot wounds of tortuous course frequently owe their apparent deviations from the straight line to a change in the shape of the abdominal wall subsequent to the shooting.

7th. In general, the course of the bullet through the abdominal wall, prolonged by a line drawn on the external abdominal surface, will indicate the course of the bullet through the cavity if its velocity is great. If at angles of five or of not more than ten degrees with this line, two other lines are drawn on either side of it, beginning at the wound of entrance, we will have represented on the abdominal surface the greatest deflections of which a bullet is capable during its passage through the abdominal cavity. An incision, therefore, along the whole length of the first straight line could not fail to uncover every part of the course of the ball, provided that there has been no subsequent displacement of the injured tissues.

8th. For this reason an incision, beginning at the wound of entrance and prolonged to a sufficient distance in its course, is often the very best which the surgeon can make. This is especially true of such wounds as, beginning at a distance from the linea

alba, pass in a direct line away from that line.

9th. The immovable viscera can be best exposed by incisions made parallel to their long diameters.

10th. When abdominal section is made for penetrating wounds, every organ and part of an organ which could possibly have lain in the path of the ball or weapon should be thoroughly explored by the surgeon, but to examine an exposed viscera or portions of viscera which could not possibly have been injured would be an error in practice.

11th. The prognosis of wounds of the empty stomach is not necessarily bad.

12th. Large accumulations of fat in the abdominal wall and cavity may sometimes contra-indicate laparotomy for visceral wounds.

PROGRESS IN GYNÆCOLOGY.

ABSTRACT OF THE REPORT OF C. B. WILL, M. D., CHAIRMAN OF THE COMMITTEE ON GYNÆCOLOGY, MADE TO THE ILLINOIS STATE MEDICAL ASSOCIATION.

THE progress in gynæcology during the past year has been essentially in the line of *reconsideration* and *revision*. Whilst, therefore, no event of very striking importance has occurred, judged from the sum total, as well as the practical character, of its presentations, it has perhaps been as prolific as any preceding. Old theories and methods have been overhauled and submitted to the test of comparative results, and new as well as old hedged about by the keenest enterprise and most searching criticism. The dazzling brilliancy of some former discoveries and practices has, as might have been expected, been dimmed somewhat in the light of further investigation, but the result has been, after all, to only give them a mellow, practical hue. Some recognized leaders in the profession have seemed to experience a radical change of view. Whilst Mr. Lawson Tait, for instance, announces with much self-confidence that he can diagnosticate a case of uterine disorder much better, or at least equally well, by the digital touch alone, or even by simply the history of the case, and that he almost never uses the sound or speculum, Dr. Emmet, not to be outdone, seemingly, goes him one better, to use the vernacular, and declares that for a long time he has not even *owned* a sound. At the last meeting of the American Medical Association a warm discussion was precipitated by the introduction of this subject in the section on gynæcology. A number of leading members stoutly condemned the use of the uterine sound under any circumstances, as entirely useless as a diagnostic agent, and actually criminal, in that it did much injury both mechanically and as a carrier of contagion, and the use of the speculum as well, for purposes of examination.

Such exhibitions are enough, certainly, to make the ordinary medical man stand aghast, and amidst the bewildering array of gynæcological paraphernalia with which, at the instigation of these same leaders, he has surrounded himself, wonder what it all means, and if progress has not at last turned backwards. In the minds of most medical men the question arises, Why this unseemly haste to appear in the front ranks of the retreating column? Is it because these instruments have been all the time useless? or that these men have from practice become so expert as to be able to do without them? If the former, then it is truly distressing, and augers evil for the future of so-called leadership, for, whilst it is an evidence of scientific candor and zeal to be ready to retreat from a position found to be untenable, or an opinion found to be erroneous, it is not a mark of well-balanced judgment to hastily discard methods which it has required generations to perfect. If the latter, then what can be more reprehensible than for one to try to pull from under the profession, so to speak, the ladder which has served to elevate one to a position of confidence and trust. In the midst of these throes of individual uncertainty, however, the mass of the profession have been going on in the even tenor of their way, realizing their ability and duty, as a whole, to put a check upon the exhuberance of their gifted but sometimes erratic *confreres*. They recognize the fact that revision does not mean annihilation, and that everything has a field of usefulness, however limited it may be.

Keeping in mind, then, the guiding stars of reconsideration and revision, it is curious to note the course which thought has principally taken in this branch of medicine and surgery. It is incumbent upon us to follow that course if we would know the points of a practical character developed during that period.

I shall, therefore, endeavor to group under three or four comprehensive head-

ings, somewhat of the principal findings during the past year.

One of the few subjects which have given rise to much investigation and discussion is that of

PELVIC INFLAMMATIONS.

Generally speaking, by pelvic inflammation is meant pelvic peritonitis and cellulitis. At least that is in accordance with the evidence deduced from the current literature of the subject. The question of the etiology of this affection, or these affections, is yet *sub judice*. Many hold that inflammation of the pelvic cellular tissue depends primarily almost entirely upon disease of the ovaries or tubes; that, as Dr. Battey says, "a pelvic cellulitis which gives rise to so much trouble is, in a large proportion of cases, secondary and not primary." This would seem to be largely, at least, the case, for aside from the generally recognized influence of pressure and other injuries in child-birth, much evidence has been advanced to prove gonorrhœa a very potent cause. The constantly accumulating evidence of this latter as an active agent in the production of destructive disease of the tubes, as well as the known laws of septic communicability, would seem to favor this presumption. By far the most fruitful primary source of these affections, however, in the estimation of the writer, is the development of bacteria within the vagina, as a result of the introduction in one way or another of pathogenic germs. There is, as has been stated by a recent writer, a great deal of criminal carelessness in infecting patients by dirty finger-nails and instruments. It is indeed surprising to one who has not given the subject special attention, with what ease and readiness a patient may be seriously infected in this way, and especially during or immediately subsequent to operations in the genital tract. Dr. E. W. Cushing, in a recent communication, very truly says on this subject: "The same principle (that of antisepsis) is to be further applied to pelvic imflammations of other than puerperal origin, and reasoning from certain premises, which may be now accepted as axioms, a system of treatment and procedure is in evolution for the avoiding of those so-called accidents, by which, after the slightest gynæcological operation, 'takes cold,' and 'cellulitis' develops. Now, 'catching cold,' with a subsequent inflammation of the pelvis, means septic infection.

Cellulitis means either a direct infection of the lymphatics, from the surface laid bare by operation, or, far more frequently, an infection of the endrometrium, which passes up the tubes, and sets up a peritonitis. This is happily unusually localized, and may not give rise to suppuration, but sometimes unhappily the process cannot be controlled, the patient dies, and it begins to be pretty hard to persuade the friends that she "caught cold" because the nurse left the window open, or lifted the blanket incautiously.

The immediate cause, or, if one will avoid that word, the constant antecedent and inseperable concomitant, of all such inflammations is an infection with living bacteria or germs, which, differing in their nature, and falling on soil more or less favorable, give rise to the greater or less severity of symptoms; from a light shiver, moderate fever, and local hardness, all the way to an explosion of peritonitis or septicæmia with speedy death.

At present we can do very little to check, or control, such processes when they have passed into the lymphatics or the fallopian tubes. The graver cases are called septic, the lighter inflammatory; but the nature of the process is the same as in any case—a bacterial infection.

We do not always know at first when cellulitis is present, and "in every stage," says Dr. Jackson, "we feel doubt as to whether this disease or some other is present. Sometimes, even when it gets on to its later stages, we have doubt." Emmet, in his paper before the American Gynæcological Society, says: "Inflammation of the connective tissues between the rectum and vagina behind, and in front of the uterus, bladder and ureters, is generally accompa-

nied by phlebitis, and is a frequent consequence of the pressure made during childbirth, but it is a matter of common observation that this form of pelvic inflammation tends rapidly to resolution, and the tissues soon regain their healthy state if septic poisoning does not take place. With the introduction of septic matter from any source, the lymphatics become inflamed and the peritoneum is rapidly involved." A report from the clinic of Sanger, of Leipsic, by Dr. H. Bigelow, of Boston, says as to a differential diagnosis that peritonitis is frequently found unassociated with any inflammation of the connective tissues, but cellulitis generally involves the peritoneum, and that in general those exudates which lie behind the uterus are of the peritoneum, whilst those on the sides, which take origin in the connective tissues of the liamentum latum and which may stretch from the fassa iliaca to the kidney, are cellulitic. Dr. James B. Goff, in a paper before the Alumni Association of the Women's Hospital, N. Y., voicing the sentiments of a large number, says that "in the light of the knowledge yielded us in late years, and the findings during laparotomy, he has come to the conclusion that pelvic cellulitis has been dethroned from the prominent position which it has held in uterine pathology, and that in its place must be substituted salpingitis and perisalpingitis, oöphositis and peri-oöphositis, peri-uterine adenitis, peritonitic bands and adhesions. When cellulitis as such occurs, it is acute in its nature and harmless in its action, for it leaves no trace behind such as may be detected by the pathologist. The small indurations around the uterus, deemed by Emmet and others to be evidence of cellulitis, have been unquestionably shown to be the result of peritonitis. Large exudations around or to one side of the uterus are due to plastic peritonitis. These exudates may of course either be absorbed or break down into pus, in which latter event we have pelvic abscess."

As to the treatment of these affections during the acute stage nothing new seems to have been offered, the, to some, doubtful remedial influence of opium, quinine, hot douches and poultices being allowed the field.

The treatment of the results of acute pelvic inflammations has, however, met with the wide-spread and careful consideration which it unquestionably deserves, although to the true scientist and conservative practitioner the necessity for it seems a melancholy commentary on the boasted therapeutics of the day. Abscess is one of the most frequent conditions or results calling for interference, and it is at the same time the most urgent. The means of diagnosis and treatment are measurably intertwined. The instrument of the former is oft times the agent of the latter. The aspirator is now generally considered a useful aid in diagnosis, as well as curative agent. Says a recent writer: "When a large mass bulges down behind the uterus and cannot be felt in either hypogastrium, we may affirm that it is not an abscess in the cellular tissue. It may be pus within the peritoneum, but usually it is the distended fallopian tubes which are felt. Here aspiration can only harm," and this is considered almost the only exception. "Laparotomy and removal of the tubes are then, of course, requisite." Evacuation of the pus is, of course, the only curative measure in pelvic abscess; the question being only how best to accomplish it in a given case. Dr. W. H. Byford thinks it should be done by laparotomy only when supra pelvic or intra-peritoneal. Dr. Christian Fenger, of Chicago, in a discussion of this subject before the Gynæcological Society, referred to the condition when a communication exists between an abscess and the intestinal tract, and remarked that evacuation of the pus into the bowel is sometimes followed by spontaneous recovery; but, as a rule, such condition is extremely dangerous, for the abscess cavity is constantly being infected with septic material from

the intestine. He quotes as authorities Pean, Schrœder and Emmet, and concludes that under such circumstances the patient is in great and constant danger of dying, and therefore an operation should be done, if possible, to provide for drainage of the abscess, and that can best be done by laparotomy. In commenting on Dr. Byford's criticism and suggestion that drainage under such circumstances should be secured through dilatation of the rectum, or rather sphincter ani, Dr. F. said that he had never heard of the idea before, but that as such openings were often narrow and tortuous, and the neighboring organs immovable, drainage could not then be satisfactorily effected, and to cut into the fistulous tract in that locality would be dangerous in the extreme.

In a letter to Dr. Jaggard, of Chicago, Dr. Paul Mund writes of this question: "I do not agree with Prof. Byford's rectal treatment, as a rule, and certainly have not in my quite extensive experience found true laparotomy required to evacuate and drain a pelvic abscess. I mean opening the peritoneal cavity. Neither has my experience been that of Dr. Dudley, who says that the mortality, from abscess opening into the rectum, is great."

Dr. H. T. Byford had, however, effected a cure in that way, and your reporter can add his testimony to its efficiency in at least one case, a few months since, which it is not necessary to report in detail, but which presented an opening about two and a half inches above the anus, and through which a catheter was introduced and drainage effected.

After the dilatation of the sphincter ani no special difficulty was experienced either in finding the opening or introducing the instrument. Tolerably strong injections of carbolic acid solution were used daily, and although some considerable irritation of the rectum was produced by the manipulation, the abscess cavity gradually closed up and the frequent irregular periodic discharge entirely ceased, and I believe the patient to be well.

As one of the best expositions of the operative procedures looked upon with favor at present, and on account of its succinctness, I append the following *resume* and review of a paper by Dr. Imlach (*Pacific Medical and Surgical Journal: Journal of Obstetrics*):

"The writer takes the ground that an abscess in the pelvis, more than in any other locality of the body, should be opened, emptied and drained, because in the pelvis a collection of pus is not likely to remain localized, but may burrow freely, burst into the cellular tissue, perforate the peritoneal cavity with fatal result, or empty into the bladder or rectum. These possible results it should be aim of good surgery to prevent by free incision and drainage. It should always be remembered, however, that to cure a pelvic abscess, drainage is not always necessary. Aspiration will frequently suffice. (Two instructive cases are recorded where the abscess was exposed by laparotomy and then aspirated, and cure was immediate and permanent.) When drainage of the abscess is aimed at, the peritoneal cavity ought not to be opened. In suitable cases, Imlach considers it safe to open up the inguinal canal, pass a probe along the swollen round ligament into the abscess, insert a glass or rubber drain-tube, and thus a large cavity may be drained without fear of peritonitis. Where an abscess seems to point in the inguinal region, its tendency is not to burst, but to extend toward the anterior iliac spine. Constant poulticing will frequently not make such an abscess open, but the incision just described will efficiently drain and cure the case. (Cases where this method was resorted to are noted, and in one the result was satisfactory, although unsuccessful aspiration *per vaginam* had been tried.) In case of an abscess occupying a large area of subperitoneal tissue, and reaching to the ribs, an incision above the anterior superior spine will shorten the suppurative process. Such an incision may be extended inwards along Ponpart's ligament, or outwards above the iliac crest. By such an incision likewise

perityphlitic and psoas abscesses are drained. Through only a small incision a large area may be drained. Reference is then made to aspiration *per vaginam*, as also *per rectum*, an instance of the latter being recorded as ineffectual, and followed by laparotomy and eventual recovery. As for the indications for aspiration, Imlach makes no positive assertion. If the aspiration fails, it is better to make a free opening at once. He has but a limited confidence in the aspirator, but yet thinks that where harm has resulted from its use it is usually because the needle has been introduced into an ovarian or tubal abscess—'a procedure of infinite risk and never ultimately successful.' 'A free vaginal incision over the most prominent part of the tumors with (or without) insertion of the finger and breaking up of adhesions has been recommended.' 'I must confess I prefer almost any other method. The tumors which, by their vaginal prominence, without adominal swelling, suggest this treatment, are either pelvic hematocules or other tubal disease, and to make a free opening into them through the vagina is to court fatal peritonitis.'" The writer (E. H. G.) then adds: "Herein Imlach, we believe, is in error. A pelvic abscess may bulge posteriorly to the uterus and not be felt through the abdomen, and still be safely opened, the cavity curetted, if need be, and the opening enlarged by the finger. See, in this connection, Mundè, on Pelvic Abscess. *American Journal of Obstetrics*, 1886. We further believe that free opening, evacuation and drainage of an hematocele *per vaginam* is by no means bound to result in fatal peritonitis. If the blood effusion be encysted, whether it was originally intra or extra-peritoneal, matters little; provided it present distinctly in the vagina, it may safely be opened, cleaned, and, if need be, drained. As for the expectant treatment of pelvic abscess, Imlach does not favor it, for in the face of such treatment the patient's health is apt to become permanently injured.

"The expectant treatment lives not on its own successes, but on the occasional failure of surgery in tuberculous subjects. By early opening of the abscess, caseation of the lumbar lymphatic glands may probably be prevented. When opening is long delayed speedy death is inevitable. Another comprehensive subject which has kept the profession on the qui vive for the twelve months just passed, as well as the preceding, is that of

REMOVAL OF THE UTERINE APPENDAGES.

About this subject, more, perhaps, than any other, there prevails a sentiment of mistrust and apprehension. That the so-called "Tait's operation," or its modifications, has been abused, no one will care to dispute, and the tide of criticism has turned strongly in upon it. That the operation has frequently been done unnecessarily, even by those who can show brilliant records as operators, is held by the mass of thinkers in the profession. The excuse of many others who have essayed the operation can be considered little short of the novelty of the proceeding. There seems to be a sort of weird fascination about it which attracts men beyond the dictates of their better judgment. That there is a field for the operation would seem now to be beyond question, but that it is far more closely limited than the practice would seem to indicate is equally true. Dr. T. A. Emmet, in a recent paper, says: "The average success in abdominal section is not equal to the average danger to life," and concludes as follows: "I believe that the operation is practiced too often, even by those who have the smallest death-rate, and I predict that five years will not pass before it will be necessary to offer an apology when its performance is suggested. The operation doubtless fills an important place in gynæcological surgery, but its usefulness must be more closely defined, and its practice greatly restricted, or the good name of the profession will surely suffer in the future." Dr. Joseph Price, of Philadelphia, claims that Mr. Tait does not guess at conditions, and resort to abdominal section for diagnostic purposes as recklessly as is generally supposed, and through which statements a world of mischief has already come. Tait says himself, on this

subject: "Save when the seat of such organic disease as will explain genuine suffering, the uterine appendages ought not to be removed, and that those who attribute all the pelvic aches and ails of women to the ovaries and tubes, and rush to remove them, are dangerous people."

It is of the utmost importance that all cases which come under our notice should receive a more rigid examination, to the end that diagnostic signs of a more positive character be discovered, and make our interference more a matter of scientific certainty. A correct diagnosis is to-day the prominent factor in solving the problem of abdominal section in any given case. Now and then, during the discussions of this subject during the year, a point or two of diagnostic value has been brought out. In a discussion of this subject before the Obstetrical Society of Philadelphia, the fact was pointed out that a very important symptom in disease of the tubes is frequently a stillicidium of bloody grumous material per uterus and vaginum, which is regarded by the patient as a prolonged menstrual period. This undoubtedly flows from the tube, and is altogether analagous to the free purulent discharge from the tubes of pyosalpinx, and it might be wise to catheterize the tube and dilate and endeavor to relieve a case of hemato or pyo-salpinx in this way if the discharge exists in sufficient quantity to lead to a suspicion of a patulous uterine orifice.

A further aid to diagnosis may be found in the history of the case as to the presence at any time of a gonorrhœa, as it is pretty well established that gonorrhœa is a very frequent source of chronic and destructive disease of the tube and ovary, especially pyo-salpinx.

Dr. Howard Kelly places his reliance regarding diagnosis entirely in a skilled bimanual examination, by which he always accurately maps out all the peculiarities of the case before operation. If there is rigidity and resistance, it is necessary to etherize, but he has yet to see the case, when the presumptive signs were those of tubal and lesser ovarian disease, where the structures could not be picked up between the two hands and outlined. Introducing the finger as high as possible, by forcing the hand well under the pubic arch, and carrying the sensitive pulp up against the post fornix or either lateral fornix, and then playing up and down with the other hand pressing on the abdomen, and creeping a quarter inch at a time without ever fully relaxing, and letting structures in between roll through the two fingers, and in case of an ovary, running round its whole periphery, or of a tube, tracing it up to the cornu uteri and down into the retro-uterine pouch, where it usually terminates, gives often most surprising results, and would doubtless, if universally carried out, change hundreds of diagnoses of leucorrhœa, endometritis, and flexions with adhesions, to the far more serious ones of pyo or hemato-salpinx."

Dr. W. G. Wylie, of New York, in a recent report, says on this subject: "Repeated attacks of local peritonitis, or a constant burning pain over the appendage, which is at times rendered rather worse than better by any form of local treatment, is perhaps the most reliable indication that removal is the only way of giving relief."

As regards the *tecnique* of the operation for removal of the uterine appendages, nothing has been offered that physicians are not familiar with in connection with the general subject of laparotomy, except, perhaps, the use of hot water within the peritoneal cavity to prevent shock. In the report above referred to, Dr. Wylie, in the accuracy of whose observations and judgment the writer has great confidence, gives an account of his use of hot water in this connection, and his experience on another point or two, in the following statements:

First—That hot water cannot only be safely used to wash out the peritoneal cavity, and that it is a simple and efficient hemostatic for oozing the points too numerous and small to tie; but that in prolonged operations, and immediately after the operation, free irrigation of the peritoneal cavity with water at 105° to 110° is a powerful and efficient agent, it lessening, if not preventing, the effects of shock. Towels wrung out in hot

water have been used to protect the intestines when turned out of the cavity; but I do not know that hot water irrigation of the peritoneum for shock has ever before been suggested. The temperature of the hot water must not exceed 110° or it may cause shock.

Second—That the tympanitis and vomiting and other symptoms supposed to be due to septic peritonitis after laparotomy are best overcome by enemas, and if these fail, by a quick purgative. That in these cases, at least, the bowels should be moved, not kept constipated, as has been generally practiced. That it is probable that in many cases the persistent and exhausting vomiting may be the direct result of intestinal obstruction, the result of bands of adhesions constricting the intestines. For a long time I have seriously doubted the existence of septic peritonitis in some cases where the vomiting preceded the rise of temperature and other symptoms of sepsis. By experience I found it best to move the bowels whenever indicated by tympanitis or vomiting, even during the first twenty-four hours after the operation—of course making a distinction between these symptoms and those due to the effects of ether. The vomiting from ether is likely to be preceded by a marked nausea, and is usually violent and gagging in character, while that from obstruction is passive and more like eructation. The quantity vomited is large, and at first brownish colored, and attended with extreme exhaustion and marked tympanitis. Without doubt the opium treatment taught by Dr. Alonzo Clark has proved to be the best plan for limiting local peritonitis, and when carefully carried out may prevent death in some cases of general peritonitis; but I am certain that it is not best suited for septic peritonitis following laparotomy. I usually give enough opium or morphine to relieve pain and restlessness, and keep the respiration down to 16, or even 12 in some cases. But when tympanitis or eructive vomiting begins, I at once move the bowels by turpentine or oxgall enemas, or by a seidlitz powder or Rochelle salts.

I took the hint from a remark of Mr. Lawson Tait that a brisk purgative would cure septic peritonitis, but the method of effecting it and the explanation as to preventing intestinal obstruction are my own.

Much interest has been manifested during the past year on the subject of tamponade of the vagina for the treatment of various diseased conditions of the uterus and adnexa. The "new departure" in this line of Dr. Engleman, of St. Louis, described by Dr. J. H. Etheridge at the last meeting of this society, has been since used with gratifying success by the latter, who has, however, substituted "antiseptic wool" for the cotton used by the former, and finds it to be of much greater utility for every purpose for which the tamponade is practiced. The dry dressings thus applied, your reporter, too, has found to be of great value in the treatment of not only vaginitis of obstinate character, but those distressing cases of vesical irritation arising therefrom, as well as from depression of the weighty uterus and appendages, and in restoring the pelvic circulation in cases of general engorgement, thereby relieving and promoting the cure of congestive and chronic inflammatory trouble and misplacements. On this subject Dr. Thornton Parker, of Newport, R. I., has the following to say: "For prolapsed and sensitive ovaries, for the treatment of prolapsed uterus, for many forms of misplacement, and in cases of leucorrhœ, marine lint is much preferable to absorbent cotton, and keeps sweeter and cleaner longer than any other appliance. The support it affords and the sense of comfort it induces make it very acceptable to patients. I apply it always in a ring form, introducing it through the speculum. Where a large pessary is indicated, as in prolapsed uterus, it must be introduced without the speculum. The oakum never irritates, and is always free from the odor following the use of any other pessary or of absorbent cotton. The oakum pessary not only ab-

sorbs and disinfects the vaginal secretions, but does not lose its place, and continues to afford support until removed. This is not the case with absorbent cotton, which is very objectionable in most instances. In cases of anteversion or retroversion as well as in cases of prolapse, the oakum pessary will be found superior to the hard or soft rubber pessary. The oakum is not only an excellent support, but possesses healing properties when applied to the diseased mucous membrane of the vagina. I usually saturate the oakum pessary with *boracine*. This improves the wholesome action of the pessary and permits its being retained for a much longer time.

The following periodicals were consulted in making out this report: *American Journal of Obstetrics; Journal of the American Medical Association; New York Medical Journal; Medical Record; Lancet and Clinic; Medical News; New England Medical Monthly; Medical Analectic; London Lancet; St. Louis Medical and Surgical Journal.*

CONCERNING MYXŒDEMA.

ABSTRACT OF REMARKS BY PROFESSOR RUDOLPH VIRCHOW BEFORE THE BERLIN MEDICAL SOCIETY.

[Translated by Professor Elbert Wing from the Original Report in *Deutsche Medizinische Wochenschrift*, No. 6, 1887.]

PROFESSOR VIRCHOW had this subject assigned for discussion, not so much because he personally had a great number of observations to report, as for the reason that the question had not received that amount of attention in Germany which its importance merits. The Clinical Society of London appointed a commission to investigate this disease, which reported, toward the close of October, 1886, 110 cases. Since that date Riess, in Germany, has reported a case which he previously observed, and recently, and in consequence of that report, Erb has reported two cases which were under observation in his clinic. As in the majority of the English cases, these three are without autopsies, but they show that such cases occur among us, and that we must begin to take part in the work which such an important subject demands.

Until recently the thyroid gland has been classed among the so-called blood glands, not so much because a great deal was known of its influence upon the blood, as because it was concluded that so large an organ must have an important influence; and since the gland has no duct, it was assumed that its product passed through the blood, and so the thyroid was compared not only with the spleen but also with the thymus gland. However, when a fundamental investigation of the histology of the organ was made, it was quickly seen that there were essential differences between the thyroid and lymphatic glands, as samples of which the thymus gland particularly, and the spleen also in a certain sense, are considered.

There is not the least analogy in any of the lymph glands, to the large alveolar spaces which in the normal thyroid gland are almost filled with cells. Professor Virchow had formerly instituted a parallel between the tissue of the thyroid gland and the cortical layer of the suprarenal capsule and the hypophysis cerebri (pituitary body). There are analogies in structure between these three bodies, and they are particularly marked between the hypophysis and the thyroid.

Recently one of the most acute observers of the younger school in England, Horsley, upon the basis of experimental as well as anatomical investigations, has again advanced the old opinion. He claims that the thyroid gland is a hæmatopoietic organ. Professor Virchow has seen his preparations, and must acknowledge that in the struma of the gland he has seen certain colony-like collections of lymphoid elements which, *cum grano salis*, however, may be compared with the malpighian bodies of the spleen. Horsley is of the opinion that this substance has power to exert some special influence over the mixture of the blood, and he has made countings of the blood from the arteria and vena thyroidia, which have shown an increased number of white blood corpuscles in the vein. Professor Virchow doubts that this is the rule. The quantity of this tissue mentioned is so minimal in the preparations of Horsley that one can find numberless other territories of the body which contain much more lymphoid tissue. When one assumes that colorless blood corpuscles are brought into the circulation from the thyroid gland, it must be only a minimum in contrast with the many other sources from which the blood constructs its elements.

In regard to the clinical aspect of the question, attention was first called to it in 1878 by Ord, one of the physicians at

St. Thomas' Hospital in London. The term "myxœdema" was originated by him. This name is based upon a striking symptom of the disease, a gradual hypertrophy of certain superficial tissues, especially those of the face. A peculiar elastic fullness of the cheeks occurs, and the lips become more and more prominent, and sometimes also the alæ nasi. Occasionally the process extends to the neck. In severe cases similar appearances are seen on the extremities. Occasionally appearances occur which have a similarity as to anasarca, with an anasarca which proceeds from above downwards. Myxœdema presents transformations to forms which are described as pachydermatous, and it has really happened that Charcot gave the name "cachexie pachydermique" to the case which he described.

Ord had the good fortune to be allowed by his patient to excise a piece of the skin, and later an autopsy was held, by means of which it was thought the nature of the disease was discovered, since, in contrast to the watery fluid of ordinary dropsy, which contains a moderate quantity of albuminates, a fluid was found which contained mucin. Now ordinary fatty tissue has the property in many cases, of undergoing a change into a gelatine-like mass, in which mucin also occurs. This condition is found in the human body in cases of atrophy of the fatty tissue, in which through other circumstances, a reduction in the volume of the tissues is prevented. Professor Virchow, therefore, at first concluded that the same thing occurs in myxœdema, a metaplasia of subcutaneous fat with a transformation into mucous tissue. However, since during a recent sojourn in London, he has had an opportunity to examine the preparations there, he thinks his first conclusions are incorrect. In the discussed cutaneous and subcutaneous sections there is a marked growth of the connective tissue, consequently the theory of a passive process is excluded, the process is of an irritative character, it is allied to the new formations, and resembles in certain respects the inflammatory processes. It is remarkable that this process is almost completely lacking upon the surface of the skin, but the deeper layers of the skin and the upper layers of the subcutaneous tissue are involved. However, it is not the fat cells of the subcutaneous tissue which show the hypertrophy, but the bands of connective tissue which penetrate between the lobes of fat. This process confirms, to a degree, the theory of the old authors expressed in the name Leucophlegmasia, and it approaches in fact the Pacchydermia in Charcot's sense, in which such a hypertrophic process of the sub-cutaneous tissue plays a prominent part.

The preparations shown Professor Virchow in London, were not able to demonstrate where the mucin is present. When one looks carefully he can see numerous processes of new growths in the tissue which belong to the connective tissue, with the appearance of the growth of mucin. Professor Virchow is therefore not entirely persuaded that the growth of mucin in myxœdema plays so important a part as the name implies. In this connection the researches of Horsley have indeed produced further discoveries. He extirpated the thyroid gland of monkeys, and according to his declaration, and according to the analysis of Halliburton, a chemist exceptionally qualified, in his (Horsley's) opinion, there resulted in consequence of this procedure a condition, called by him, mucinoid, in which the blood contained mucin; there resulted therefrom a sort of mucinous dyscrasia. While the blood usually contains no mucin, he found, in the blood of a monkey which lived 55 days after the operation, 0.35 per thousand, and in the blood of one which lived 49 days, 0.08 per thousand.

Horsley further found that after extirpation of the thyroid gland the quantity of mucin furnished by the salivary glands was greatly increased, and that the parotid gland produced a secretion which contained more and more mucin. The skin, tendons and muscles, and the tissue of the parotid and submaxillary glands themselves, were examined, and in all cases an increase of contained mucin was found.

Horsley therefore draws the conclusion that the thyroid gland is a kind of

regulator of elementary changes, and especially controls the transformation of certain elements in the final disintegrative processes, which, when it is removed, ceases, and now the albuminates remain in a state of mucin, and do not proceed to the final disintegrative processes. If these researches, that is, the chemical researches and all that belongs with them, are confirmed, there will thereby probably be afforded an explanation of the nature of the swellings which appear upon the outer parts of the body. One must however conclude that the swelling is not, as Horsley himself seems to think, a simple condition of retention, but also an active irritant process.

But the manifestations of myxœdema ever present only one link in the chain of phenomena of the disease, and which is indeed upon the first glance the most striking. The list of other manifestations is still more impressive, and among these are those of a purely nervous nature. Sir William Gull had, five years before Ord, described five cases occurring in women, who during life were presumed to be in a cretinoid condition. It is hardly doubtful that these were cases of myxœdema. The cases observed since that time have shown, that while the external appearances of the affected individuals change in a characteristic manner, a number of changes appear in the nervous system, especially in the way of mental ability, which, upon the whole, appear to be those of depression, and which occasionally lead to complete idiocy. The affected individuals remain in a peculiar condition, take no interest in their surroundings, have apparently no mental ability, when spoken to sharply, reply, indeed, but in a very much altered voice, protruding the tongue, but the reply always indicates a brain working in a normal direction, but very feebly and very slowly. From this list of changes the question comes prominently forward, just what is the relation between myxœdema and other disturbances of a nervous nature. Horsley has observed quite closely analogous conditions in monkeys in which he had removed the thyroid gland. In these experimental researches he endeavored to observe very carefully the course of the manifestations, and as a result divides the course of the disease into three stages. He differentiates first a nervous stage, in which the nervous manifestations are markedly prominent, among which a peculiar tremor and occasionally cramp-like manifestations occur; then, a second, a mucinoid stage; and finally a third, an atrophic stage. In this connection it is to be observed that the animals were able to live only a relatively short time. At once there appeared a marked diminution of the temperature which rapidly progressed, so that it was only by means of artificial heat that the animals could be kept alive longer than the usual period of five to seven weeks. There was an opportunity given, in these animals, to approach nearer the question as to what is the nature of the process in the brain in these cases. The suggestion that there is some nerve connection by which changes in the cerebral cortex are brought about, naturally occurs at once.

The operations were always performed under the strictest aseptic conditions in order to surely protect the greater nerves, and the anatomical investigation of the nerves failed to show anything which could be considered a softening worthy of mention, consequently Horsley concluded that the brain suffered disturbances since the vitiated blood no longer furnished the proper nourishing material.

The question of the relation of goitre and cretinism has from early times been constantly recurring and discussed. And the fact is, that endemic cretinism does not exist anywhere in the world where endemic goitre is not also present. On the other hand sporadic forms of cretinism and of goitre have also repeatedly been observed. And further, we cannot say that goitre and cretinism stand in any certain parallelism in the same individual. The most marked strenuous forms are as a rule associated with integrity of the mental faculties, or at least with no degree of disturbance

bance of those faculties which can be compared with cretinism, and again there are very many cretins who have no marked goitre.

About fifty years ago there was a royal commission in Sardinia which carefully traveled through the goitre and cretin district. It found that among the cretins which they examined 2,011 were not strenuous, while 3,912 had goitre. It is of course not to be denied that the examination in the living is often difficult to make, but still it remains from these observations that in or about a third of these cretins had no goitre worth mention. Also in these cases the necessity of the combination did not exist. Nothing in this relation was more clearly marked than congenital struma. Since cretinism is established during fœtal life, one is forced to conclude that when struma and cretinism are present in the same individual, one must find in congenital struma disturbances which indicate cretinism. So far as earlier literature is concerned, and in his own experience (Geschwülste III, p. 54) such a combination has not occurred. Nevertheless it cannot be denied that a very common form of cretinism exists which undoubtedly has a very great similarity with myxœdema. In Italy and especially in Sardinia where there is such a large number of cretins, the common people have for centuries differentiated these diseases. The one they call "cretins," from creta, chalk, and the others "marrons." Professor Virchom has been to the trouble to investigate this terminology, and has concluded, that by the term cretin, the leucophlegmatic cretins are meant; and this form of cretinism has undoubtedly very great similarity to myxœdema.

These appearances resemble another congenital condition, the so-called congenital rachitis, which has no resemblance to the acquired rachitis. Professor Virchow demonstrated two preparations, two new-born children, in which these appearances were present in a marked degree. In both cases the thyroid gland was exposed, and it was shown, that at least in the case of that child which presented the most marked appearances of myxœdema, the thyroid gland was present in that condition in which one would expect it to be in a new-born child. On the contrary, the second child, which died at a much earlier stage, had an extreme atrophy of the thyroid gland. A complete and original absence of the thyroid must be the greatest exception. Professor Virchow possesses only one preparation in which one-half of the thyroid gland is lacking, but this is by no means an absence of the entire gland. Many children with congenital rachitis—disregarding the disturbances of growth of bone in the extremities—present very marked changes at the base of the brain, which correspond with certain changes in cretins, namely, synostosis of the basilar bones and atrophy of the hypophysis.

A real support for the significance of the reported observations has been won through the recent experience with the so-called cachexia strumapriva. Just recently Küster has presented such a case to the Society, and the existence of such a peculiar neurotic cachexia can be confidently asserted. Upon the ground of this fact it is already recognized as a necessity in surgery, not to extirpate the entire gland, but to leave at least a part of it. Horsley found that after a partial extirpation, the rest of the gland very rapidly increased in size, and that thus a compensatory hypertrophy occurred.

In this connection Basedoni's disease, the cachexia ophthalmica, with its retroaction upon the heart, the brain and the eyes, is to be remembered.

Professor Virchow closed his remarks with the repeated suggestion, that all of these remarkable processes possess a pressing warning, to keep a careful watch upon the condition of the thyroid gland, also in the general practice of medicine, in order to bring the greatest possible amount of material to the settlement of the question.

THE VALUE OF THE GALVANIC CURRENT IN GYNÆCOLOGY.

BY FRANKLIN H. MARTIN M. D., CHICAGO, ILL., PROFESSOR OF GYNÆCOLOGY IN CHICAGO POLICLINIC.

Electricity, just at present, is receiving that merited attention from the medical profession that all therapeutic measures of great value are in time bound to command. The time is past when a physician of rank can afford to ignore the power for good that is stored away in a well-regulated electric battery. Neither can a physician any longer, who values his reputation for intelligence, be content to give "electrical treatment" in the haphazard manner that has been prevalent among the majority of men until within the last few years.

Electricity has become a known quantity; it can be generated, measured and stored at will. The amount of work that can be *accomplished* by a given current can be figured to a mathematical certainty. It is governed by certain inexorable laws which make it a powerful agent for good or harm according to the intelligence of the one to whose keeping it is intrusted.

In this article I wish to give a cursory glance at what can be accomplished in the treatment of certain gynæcological diseases by the bipolar application of a continuous galvanic current of electricity. I mean by the bipolar method, the use of two electrodes, one from each pole of the generator, arraigned upon the body in such a manner that the diseased portion lies in the line of and constitutes a portion of the circuit.

The following effects are utilized in the bipolar method of applying galvanism; 1st, the local effects of the electrodes; 2nd, the electrolytic effect of the current; 3d, cataphoric action of the current; 4th, anæsthetic effect of the current.

The local effect of the electrodes vary with the character of electrode, the particular pole employed and the density and strength of the current. In gynæcological practice one electrode only at a time, as a rule, is considered the active. As this active electrode is ordinarily placed in the vagina or uterus, it is also called the internal electrode. This internal active electrode may be either positive or negative, according to indications, and should be composed of conducting metal, either covered with moist sponge, cotton or chamois, or uncovered, as indications (which will be referred to hereafter in detail) may demand. The external electrode, which is usually passive, is for the purpose of closing the circuit in such a manner that the current in passing between it and the internal electrode will traverse the diseased tissue, and is placed upon the integument. This electrode is constructed of material that makes it valuable as a conductor, while it diffuses the current sufficiently to avoid pain. It may be an ordinary flat sponge electrode (Figs. 1 a and b), or a membranous electrode on the principle of the one represented in Fig. 8.

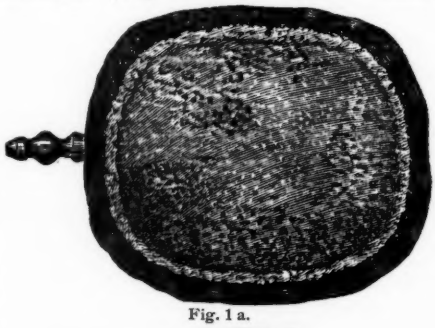

Fig. 1 a.

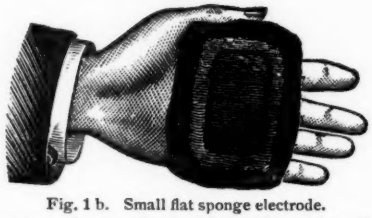

Fig. 1 b. Small flat sponge electrode.

The first effect locally on living tissues in which the active positive pole comes in contact when a current is gradually increased in strength, is slight irritation accompanied with redness. As the current is increased the surface becomes contracted and a sharp, smarting

sensation is experienced; when carried still further the surface becomes contracted and hard, and coagulation of the deeper tissues around the electrode takes place; if the process is carried still further, a deep, hard eschar surrounding the electrode is the result. The effect produced here is identical with that obtained by a caustic acid. It is produced by the acid radicals of the decomposed tissues rallying around the positive pole. This pole is therefore called the acid pole.

The first effect locally on living tissue with which the active *negative* pole electrode comes in contact when the current is first rendered perceptible, is an appearance of moisture appearing on the surface of the electrode; as the current is increased the moisture increases, and a slight bubbling of gas is noticed from around the electrode; as the current is further strengthened a white eschar is found beneath the electrode, and as the current is still further increased a deep white slough is produced with an abundant flow of liquid and escape of gas.

The effect produced at this pole is very similar to that caused by caustic alkali. The negative pole is called the alkaline pole. To be able to utilize all the effects of the poles described above, a means of generating electricity of a working strength of from 5 to 500 milliampères should be at hand. In order to obtain uniform results and to guard against accidents in manipulating strong currents a galvanometer should always be used. See Fig. 2.

Fig. 2.

Electrolysis, the principal action of the galvanic current that we seek in causing the absorption of pathological tissues, is not a new phenomenon in electro-chemistry. It is the power that a galvanic current has of resolving certain compound bodies into their constituent elements. By this action the more loosely combined elements of certain compound molecules of any pathological tissue that the current may be traversing are relaxed and their deposit accomplished where they will be carried from the system.

The Cataphoric Action of the galvanic current should also be recognized as playing its part in the promotion of absorption. It is by this property that fluids are determined in mass from the positive to the negative pole. This action, in producing an unnatural turgescence of fluid at the negative pole, favors its osmosis into the surrounding absorbents, and thereby accomplishes its removal.

The Anæsthetic Effect of the galvanic current is of great value in gynæcological work. In some as yet inexplicable manner galvanism has a power of relieving pain, especially that variety of pain included under the ordinary term neuralgia.

The pathological conditions which I wish to discuss and to utilize the above points in, and in which I have received marked beneficial results and not a few cures in gynæcological practice, will be included under the following headings:

1. Chronic Cellulitis and Peritonitis.
2. Chronic Ovaritis and Salpingitis.
3. Chronic Subinvolution of Uterus.
4. Chronic Hyperplasia Uteri.
5. Uterine Stenosis.
6. Laceration of Cervix Uteri.
7. Peri-Uterine Hæmatocele.
8. Uterine Fibroids.

Chronic Cellulitis and Peritonitis.—Under this head I wish to con-

sider all conditions in which inflammatory ex-udates have been deposited in the fe-male pelvis anywhere, caused by a general or local peritonitis, perimetritis, parametritis, or inflammation of the cellular tissue surrounding the uterus and vagina, or in the broad ligaments. Under this head we meet with some of the most aggravating difficulties that the gynæcologist is called upon to treat. Among the objective symptoms we fiind: Hardened, thickened condition of the anterior or posterior wall of the vagina; thickened deposits in Douglas' cul-de-sac, limiting the movements of the cervix; thickened masses between the anterior portion of the cervix and the bladder, with adhesions; thick inflammatory masses laterally between the folds of the broad ligaments, displacing the uterus and interfering with its motion; and in many cases we have a general thickening on all sides, with an immovable womb and tenderness in every direction. The subjective symptoms accompanying these various conditions are as varied as the objective. Besides the many local symptoms, we may have any or all of the organs of the body controlled by the sympathetic nervous system, involved in a sympathetic distress. The local symptoms include all forms of distress that may arise from interference with the functions of the pelvic organs. Constipation, sacralgia, dysuria, dysmenorrhœa, together with acute neuralgias in regions where twigs of nerves and sensitive nerve-ganglia are imprisoned in the inflammatory exudates.

While one or more of these multiform conditions are met with almost every day, we are almost helpless in our efforts to remove these inflammatory deposits and thickenings after they have become organized. True, we can promote absorption slowly, by the use of hot water, iodine, glycerin, massage, etc., and in cases of small deposits we may get absolute cures. It is in just these cases that electrolysis is indicated. Electrolysis, if properly manged, will promote the absorption of these exudates very rapidly, and in my hands has been the means of relieving a great many very severe symtoms together with their cause. I have a number of cases which properly come under this head, that I have treated with beneficial results, in not only relieving the symptoms for which I was consulted, but in which I have also removed the inflammatory deposits.

It will be impossible, however, in this one short article to do more than give the description of my method in each variety of cases. In these cases the treatment is applied in such a manner as to include as much of the inflammatory matter in the electric circuit as possible at each *séance*, and is varied so as to include all in the course of two applications. The external electrode is connected with the positive pole of the battery. This electrode should be a flat sponge hand-electrode, similar to the one manufactured especially for me by the McIntosh Galvanic Battery Co., of Chicago (Fig. 1 b). It is a flat metal, the length of the hand, and about two and a half inches wide, covered on its inner surface with sponge, while the outer surface is covered with rubber, over which a wide band is fastened at either end, through which the hand is passed. This electrode is worn on the hand of the operator, and is narrow enough not to interfere with the flexion of the fingers. By means of this the operator can locate the uterus as in bimanual manipulation, and control the direction of the current perfectly. The negative electrodes employed are of two forms and are used on alternating days. One an ordinary rectal electrode of metal insulated with hard rubber to within one inch and a half of the end, and about one-fourth of an inch in diameter, with an olive point (Fig. 3); the other an ordinary vaginal electrode of metal, insulated to within an

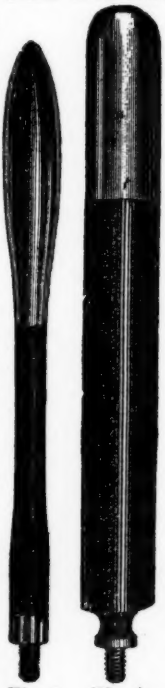

Fig. 3. Fig. 4.

inch of the extremity, with the extremity round and about three-fourths of an inch in diameter (Fig. 4). When the object is to promote absorption of pathological tissue some distance removed from the negative pole, it is well to have the metal covered with a moist piece of chamois.

The vaginal electrode is introduced into the vault of the vagina and connected by means of flexible wires with the negative pole of the battery. The hand electrode is controlled by the right hand, as the current is gradually increased a cell at a time by the left hand. The right hand with the sponge electrode, well moistened, is pressed firmly down over the uterus until the patient feels a smart, burning sensation of the skin. Then the vaginal electrode is pressed firmly into the vaginal vault and kept in one position throughout the *séance*. In these positions the electrodes remain and the current is allowed to act for ten minutes. Each alternate day the rectal electrode is used, the metal portion pressed firmly against the thickened anterior wall in such a manner as to cause the current to pass through the hardened exudate. Thus, in the course of a few settings, all portions of the pelvic cavity affected help to complete the circuit of the battery, and obtain the effect of the electrolytic action.

Chronic Ovaritis and Salpingitis are so intimately connected with all forms of pelvic inflammation that they may almost properly be considered under the head of chronic peritonitis and cellulitis of the pelvis. Ovaritis and salpingitis are so inseparable in their inflammatory diseases that in the late fashionable craze to unsex the women they have both invariably disappeared together.

In conditions of salpingitis and ovaritis, with inflammatory deposits, whatever the cause is, I am convinced great relief can be obtained, as far as the removal of the deposits will give relief, by the judicious employment of electrolysis. I am certain that in a number of painful and serious conditions of this kind I have obtained relief. At any rate, the method is well worth trying before advising the removal of the ovaries. There is very little relief to be obtained by any other non-surgical procedure.

The following case is a well-marked one of the kind, and one in which I think a cure was effected:

A young married woman, twenty-six years of age, with no children, consulted me for a pain in her side, which had been gradually increasing in severity for three years. The pain was constant, with excessive exacerbations for two days before each menstrual period, at which time there was also pain, though not so intense, on the right side. There was tenderness on pressure in the left ovarian region, and if the pressure was persisted in it increased the pain so that it resembled that experienced before menstruation. In the left broad ligament a little body was discoverable which seemed like a prolapsed ovary. It was considerably enlarged and perfectly immovable. The right side was free from tenderness, and contained nothing abnormal. The pain of that side was evidently of a sympathetic nature.

For this patient electrolysis was recommend three times a week. The current that could be borne at the first few sittings was very weak, three or four milliampéres being sufficient to cause increased pain in the parts. The vaginal electrode (the negative) was crowded well up on the left side of the vaginal junction, and the external sponge electrode passed gently over the region externally, so as to include the tender ovary and tube in the circuit. The patient soon became more tolerant to the current, and it was increased within two weeks to as many as fourteen milliampères. The patient got relief from the first application. The treatment was contined for about nine weeks. After the second week the continuous pain had entirely disappeared, although she suffered some at the first menstrual period. At seven weeks the pain and tenderness had disappeared; her menstruation was free from pain. Upon manipulation the ovary was found much reduced in size, movable, and free from all abnormal tenderness. Treatment was suspended after nine weeks.

Chronic Subinvolution.—This condition is so frequently met with that I have had numerous opportunities of witnessing the

beneficial action of galvanism in its treatment. I have noticed it gradually recduce in size while treating other pelvic conditions with galvanism where it was necessarily brought into the circuit.

The internal electrode used here is a cervical electrode of metal, cup-shaped and insulated except the concavity of the cup (fig. 5). This is introduced in such a manner as to have the cup support the cervix uteri. The circuit is closed by applying the hand sponge electrode over the fundus. A current from ten to twelve milliampères is tolerated without harm, each *séance* lasting ten minutes.

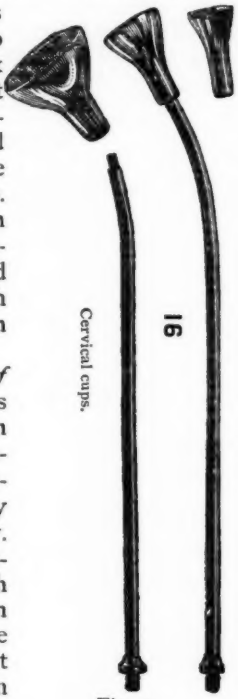

Fig. 5.

Hyperplasia of the Uterus. — This condition, which in many respects resembles subinvolution, can properly be considered now. It does not necessarily, although usually, occur in women who have borne children. It may be simply an inflammatory condition of the connective and fibrous tissue in a chronic, subinvoluted uterus, or it may be a general hyperplasia of the uterus, caused by the irritation of a lacerated perineum or cervix; or it may be caused from the irritation of repeated menstrual congestions, which is made abnormal by a flexion or displacement of the uterus; or an error of nutrition from a general nervous derangement may be the exciting cause. *Whatever the causes are*, we find a large, tender uterus, a thickened, catarrhal condition of the endometrium, oftentimes an inflamed condition of the cervical glands, with the thick, albuminous discharge welling out, and very often a well-marked abdominal displacement from the sheer weight of the organ. The condition is one of hypertrophy of the normal constituents of the organ from congestion and inflammation. I have several times seen this condition yield to the chemical effect of the galvanic current when using it in other connections. In a condition often accompanying this I have seen very pronounced results, and it is worthy of mention because of the unsatisfactory results by the ordinary methods of treatment of the difficulty. I refer to *inflammation of the cervical glands*. This disease, with its characteristic tenacious albuminous discharge, every physician has more or less to do with. The ordinary forms of treatment, where cure is accomplished are harsh, and unsatisfactory in the extreme. Destruction of the deep gland tissue by curetting, cauterizing or cutting are the only methods that have heretofore given satisfactory results. These glands can be destroyed, or their condition of chronic inflammation reduced by the effect of repeated applications of a metal bulb of the negative pole of a galvanic battery. I first noticed this condition yield while treating other forms of pelvic trouble with electricity, where it was desirable to pass a metal electrode into the cervical canal. One-half dozen thorough applications of this description, using a bulb electrode similar to those used for stricture of the urethra (Fig. 6), and gradually increasing the size of the bulb, will, I think, cure the most obstinate cervical catarrh. A current of from fourteen to twenty milliampères can be used without producing any pain. I pass the bulb of the electrode through the internal os at each application.

Strictures of the Uterine Canal I have removed by electrolysis in a large number of cases. It was in this condition, at the suggestion of Prof. De Laskie Miller, of Chicago, that I first used electrolysis. That gentleman had been using it with success for some time before my first attempt. It matters not what the condition is that produces the stenosis, or in what portion of the canal it exists. It has all the advantages over gradual dilatation, divulsion or cutting, that electrolysis has in the treatment of male

urethral strictures over gradual dilatation, divulsion or cutting, viz.: painlessness, permanency and, in cases of gradual dilatation, promptness.

The method of operating on these strictures is very similar to that employed in strictures of the urethra. A small staff of soft metal covered with hard rubber, upon the end of which one of the graduated set of olive-shaped metal bulbs may be screwed, is used for the uterine electrodes. After making out the position of the uterus by manipulation, or by passing a small, flexible metal probe, the staff of the electrode is made to conform with the supposed shape of the canal (Fig. 6). After this a flat sponge-electrode, attached to the positive plate of the battery, is applied to the thigh or abdomen of the patient, the internal electrode is passed into the cervix, either through a Sims speculum or a wide bivalve, and while the cervix is steadied with a strong tenaculum with one hand, the electrode is guided by the other into the cervix until it finds its first obstruction, the current is gradually increased, while very gentle pressure is made on the electrode until it passes in the course of the canal all the obstructions. Usually the smallest canal can be passed at the first sitting of a bulb the size of a No. 7 or No. 8 English catheter. This can be repeated with larger bulbs, if desirable, for three or four times, when it will be found that the canal is permanently enlarged.

Fig. 6.

Laceration of the Cervix Uteri.—This is a condition which, of course, cannot be repaired by electrolysis. I hope it will not be considered too enthusiastic, however, if I assert that temporary relief can be obtained from the results of laceration of the cervix by the proper use of electrolysis. The painful consequences following this condition of laceration are due in great part to the formation of cicatricial tissue in the fissure, to degeneration of the mucous follicles, to obstructed circulation in the neck, and to connective tissue changes and a congested hypertrophy.

By experience in just this condition, when the privilege of trachelorrhaphy was withheld, or when from some other good reason I was deterred from operating, I have obtained very gratifying *temporary* results. I emphasize *temporary*, because time enough has not passed since the operations to warrant me in saying permanent. The cervical cup (Fig. 5) is used for the internal electrode in the treatment of these cases, with an occasional application to the canal of the cervical bulb electrode (Fig. 6).

This method of treatment is so prompt in relieving this condition that it is destined to become very popular as a temporary measure, or as a general measure when there are insurmountable barriers to an operation. As a preparatory measure for trachelorrhaphy it surely possesses very superior claims.

Peri-Uterine Hæmatocele.—Dr. Apostoli recently described a method of treating this condition by means of negative-galvano-puncture, as follows: "The chemical caustic action of the continuous current is utilized in making an opening into the tumors. The opening thus made is, in character, a non-retractile fistula, with tendency to remain open, and with adhesions between the pathological cavity and the external mucous membrane. * * * * The advantages of this method are that, on account of the adhesions formed, the danger of opening is lessened, and the cicatrix left by the negative eschar is slight and non-contractile. A further after-effect of this method of utilizing the chemical caustic action of this current is that the nutrition of these pathological cavities is modified, leading to retrograde metamorphosis."

Fibroid Tumors of the Uterus.—While there are many methods described for the treatment of this troublesome malady by electricity, I shall content myself in

this paper to a description of a method that I have pursued for some time with very gratifying success. The method that I refer to is a slight modification of that devised and practiced by Dr. Apostoli, of Paris.

Consideration of Tumors.—I will not go into a long discussion of the history, causes and pathology of fibroid tumors of the uterus, because it does not particularly bear upon the subject before us. However, to facilitate a description of my method of treatment, I will make the old division according to location into: 1, submucous; 2, interstitial; 3, subperitoneal. The nomenclature of this division sufficiently explains itself. To still further expedite matters, allow me to divide these tumros according to their condition into the hæmorrhagic and the non-hæmorrhagic. By hæmorragic we will include those tumors that produce from a simple excess of the menstrual flow to the most alarming continuous hæmorrhage. The non-hæmorrhagic will include all others.

In the treatment of these tumors we utilize all the effects of the galvanic current heretofore enlarged upon, viz.: 1, the local effects of the electroyis; 2, the electrolytic effect of the current; 3, cataphoric action of the current; 4, anæsthetic effect of the current. With the exception of the first, the local effect of the electrolis, it will not be necessary for me to dwell upon these points. I wish, however, more specifically to speak upon this point in this connection.

The effect of the positive pole is termed by Dr. Apostoli the galvanocaustique effect of the positive pole. This is an action of a great deal of importance, and from which a great advance is contributed in the treatment of hæmorrhagic fibroid tumors of the uterus. The phenomenon is obtained only by the employment of a very strong current, from 50 to 1,000 milliampĕre strength, and concentration of this current at the point of contact of the positive pole of the battery to the tissues. This electrode must be of small size, and of some unattackable metal. The effect obtained upon vascular tissues or mucous membrane by thus concentrating the current is to produce an eschar. This eschar, however, if the current has been proper, will be found to be simply a coagulation and a hardening of the mucous membrane and the tissues beneath it for some little distance. This process of contraction and coagulation modifies the calibre of the vessels of the circulation so that hæmorrhages are less liable to occur at the point of application; at the same time it does not destroy the circulation sufficiently to produce strangulation and death of the part. There is nothing that will so effectually stop all forms of excessive hæmorrhages or leucorrhœa, without producing a troublesome slough and a subsequent contraction, as this particular application of electricity when made to the mucous membrane of the uterus.

The local effect of the negative pole is the opposite of that of the positive when the current is strong and concentrated. The action of this pole is one of liquefaction instead of hardening and coagulation. Its eschar resembles much that of a caustic alkali.

The Electrodes used in the treatment of fibroid tumors by Dr. Apostoli's method are few in number. Two electrodes are always necessary at every operation. One of these is applied externally on the surface of the body, the other in some form internally. Where powerful currents are employed, such as I have described, the first object is to devise means of conducting them through the parts desired, without producing harm to innocent tissues, or pain to the patient. One pole, the internal, is usually the active one. This is either a sound, that fits accurately the uterine canal, or a pointed electrode which enters a presenting portion of the tumor. This is constructed of unattackable metal, platinum when in form of sound, platinum and iridium when in form of needle. Some means of insulating the vaginal portion of the electrodes must be devised. (Fig. 7.) Needles used in electrolysis should be insulated up to within one inch of the point in order to protect external tissues. After the proper internal electrode has been selected and placed in position, and before

the current is turned on, the circuit of the battery must be closed by applying some form of convenient electrode externally that will give the minimum resistance without excessive pain. This has been one of the most difficult things to accomplish in the use of strong currents. This external electrode should be placed upon the abdomen in as close proximity to the internal one as possible. It should have a large surface in order to diffuse the current. All parts of the surface should conduct equally, and fit accurately into all irregularities of the surface. Dr. McIntosh has succeeded in constructing for me this electrode (Fig. 8). A concave disk of soft metal, of appropriate dimensions, has loosely stretched over its concavity an animal membrane which is fastened to its circumference securely enough to render it watertight. Between the concavity of the disk and the membranes is left a space one and one-half inches in thickness, which is filled with hot water or a saturated solution of chloride of sodium. The electrode is filled through a stopper on the surface of the metal; the connections are also made from this surface.

Fig. 7.

This electrode, when filled, is applied to the surface of the body so that its membrane surface is in contact with the skin. It adapts itself accurately to all irregularities, covers a large surface, and causes a diffusion of the current so perfectly, and makes connections so complete, that I have been able repeatedly to use a current of from 200 to 1,000 milliampères, without the necessity of an anæsthetic.

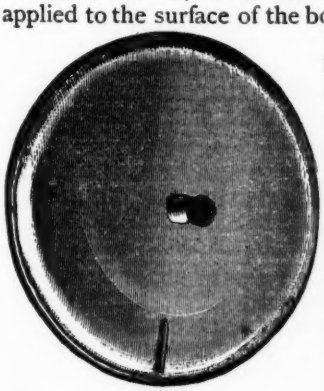

Fig. 8.

Details of Application.—There are three distinct operations that are called for in the rational treatment of fibroid tumors of the uterus by electrolysis. They vary according to symptoms and conditions. The first that I will consider is for the relief of excessive hæmorrhage. I consider this of first importance because it is one of the most distressing symptoms we meet with in dealing with these difficulties, and a symptom which often baffles every other resource.

I will not go into a description of the different conditions that *may* be present in hæmorrhagic fibroids, but will confine myself to the few conditions that must be present to allow of benefit from this treatment. We have excessive hæmorrhage, which may be continuous or periodic. The hæmorrhage is from the cavity of the uterus. The uterine canal must be accessible to a flexible probe. There must be no acute metritis, peri- or para- metritis present. With these requisites, positive and negative, we may proceed to operate. An assistant, if the patient is reasonably strong, is not necessary. The application is preferably given in the office.

The patient's clothing is loosened, and she is instructed to assume the dorsal position upon an operating chair or table. A speculum is introduced or not, according to convenience of operator, and the direction, size and depth of the uterine canal is ascertained by means of a soft metal probe. A uterine sound electrode composed of pure platinum (Fig. 7), corresponding as nearly as possible with the size of the uterine canal, is selected, and made to conform to the general direction of the canal, as indicated by the probe. This electrode is then introduced to the bottom of the uterus, and the insulating shield is pushed up until it touches the cervix and covers perfectly the intra-vaginal portion of the metal. When the electrode has been satisfactorily applied and connected with the positive pole of the battery, Martin's large abdominal electrode (Fig. 8), properly prepared and attached to the negative pole of the bat-

tery, is applied to the lower portion of the patient's abdomen in such a manner as to bring its whole surface in contact with the skin.

After the electrodes have been securely placed and the connections are found to be perfect, the operator should commence turning on the current. This should be done very gradually at first, in order that the patient may experience no shock. If the patient complains of a dull pain internally while the current is being increased, the operator should stop for a few seconds, and he will often find that the pain will cease, after which the current can again be increased to the desired strength without excessive pain. At the first not more than a 50-milliampère current should be used. If the patient bear this well, it should be increased at each succeeding operation until a strength of from 100 to 500 milliampères is obtained. The first operation should last about five minutes, and if well borne the succeeding ones can safely be lengthened to ten or twelve minutes. In finishing the operation the current should be decreased in strength a cell at a time, very slowly, until it is entirely excluded. After the operation the patients should remain quiet for half an hour, when they can return to their homes, with instructions to keep very quiet for at least twenty-four hours.

This operation has two effects. It checks hæmorrhages, and reduces the size of the tumor. The local coagulating effect of the platinum electrode upon the inner surface of the uterine canal checks the hæmorrhage, and the electrolytic effect of the powerful current through the tumor favors its absorption. A number of repetitions of the operation are necessary to control severe hæmorrhages. It is impossible, at one sitting, for the internal electrode to come in contact with all the surface of the canal, no matter how much pains may be taken to make an accurate adjustment. Nothing but repeated operations can accomplish this. Unless the current is too strong there will be but very little subsequent sloughing at the place of contact of the positive pole. If troublesome sloughing *should* occur after an application, a somewhat weaker current should be used afterwards. It must be remembered that coagulation, and not cauterization of the tissues is the point sought.

The second operation to which I will call your attention is for the reduction of tumors that have grown in such a manner that they have distended or occluded the uterine canal so that it will not admit a sound electrode, and thereby renders intrauterine *treatment proper* impossible. In these cases an *artificial* canal should be established in the obstructing portion of the tumor by means of negative galvano-puncture entering the tumor from the cervical canal.

For this operation the patient is also placed in the dorsal position. The position of the cervix is ascertained, and by aid of a proper speculum a sharpened probe of platinum and iridium is thrust a safe distance into the center of the presenting fibroid. The vaginal portion of the electrode is properly insulated as in the other operation, and is then connected with the *negative* pole of the battery. The abdominal electrode is attached to the positive pole and applied as for the previous operation, with proper precautions the current is gradually turned on until the desired strength is obtained, this being as high as 150-milliampères, often without pain or harm to the patient. Contrary to ordinary expectations, the *pain* produced by this operation is not sufficiently severe to require an anæsthetic, and with the exception of the first *séance*, when the new canal is established, the succeeding treatment is no more disagreeable than the ordinary use of the internal electrode in the uterine canal. Before any internal needle or puncture operation a vaginal injection of 1 to 5,000 bichloride of mercury should be given, and repeated each day as long as the treatment is continued. An internal of about five days should elapse between the first and second application, and the duration of the *séance* should be from five to ten minutes.

The first effect derived from the employment of this method is the establishment of a new channel to take the place

of the distored and obstructed uterine canal and by which subsequently the tumor will be treated. The second effect is the direct electrolytic action of the current upon the growth. The channel left after the withdrawal of the probe is somewhat larger in diameter than the electrode itself and will remain for a number of days penetrable to the probe. There is but slight suppuration from its surface, but should there be any considerable hæmorrhage from the artificial canal, one application of the electrode with the current reversed, making the positive pole the internal, will give relief. One imperative point in these operations is the proper selection of poles to be employed. The immediate effect of the negative pole is to liquefy the tissues with which it comes in contact, like a caustic alkali, and it should be selected for the establishment of a canal, while the effect of the postive pole is to coagulate and harden tissues coming in contact with it, like a caustic acid, and it should always be employed to check hæmorrhage either from the artificial canal or from the natural uterine canal itself. Therefore, for the rapid reduction of a tumor the negative pole is decidedly preferable, and should always be applied unless the presence of hæmorrhage demands the use of the positive.

The third and last operation to which I will call your attention is the extra-uterine galvano-puncture, or the needle operation proper. Tumors that call for this form of treatment are those that are not amenable to the other two forms already considered.

This variety, usually of a subperitoneal type, often pedunculated, can be reached either by puncture through the vaginal wall, using great care not to injure the bladder or other important organs, or, where this is not feasible, by puncturing through the abdominal wall. Everything else being equal, the needle should be introduced into the tumor through the vagina, because if it is at all possible, the tumor lies in contact with the vagina; therefore the tissues that it is necessary for the needle to traverse are unimportant, while the abdominal wall with its fat, muscle, and peritoneal layers is too formidable to penetrate even with a needle unless actuated by absolute necessity. If the puncture is to be made through the vagina, a thorough vaginal injection of the bichloride solution should be employed, and for this operation, unless the patient has more than ordinary fortitude, an anæsthetic should be administered. For this purpose I employ, as preferable, the mixture of equal parts of alcohol, ether and chloroform, on account of its prompt action and transient effects.

After it has been definitely determined that this operation is the only alternative the patient is placed in the dorsal position, and all instruments being in readiness, the anæsthetic is pushed promptly to a surgical degree and then entirely withdrawn. A suitable speculum is introduced, and a needle with a proper curve and insulated with hard rubber to within one inch of the point is thrust through the vaginal wall into the tumor. (Fig. 9.). The position of the bladder should have been ascertained by means of a probe or catheter, before commencing work. When the needle has been satisfactorily adjusted the speculum is carefully withdrawn and the needle connected with the negative pole of the battery. The same external electrode should be adjusted with the same care, and in the same manner as in the other operations described, and connected with the positive pole. The current is now gradually turned on until a strength as indicated by the galvanometer is reached of 500 to 1,000 milliampéres. In the meantime the patient is allowed to come out from the influence of the anæsthetic, which usually occurs without any struggling; a peculiarity of the anœsthesia by the A. C. E. mixture, which makes it very desirable for this work.

Fig. 9.

This operation should last for about eight minutes the first time, and subsequently, if it is deemed desirable, a longer time can be given. When the operation is terminated, and the current has been gradually with-

drawn, the needle will be found loosened, and its removal is accomplished with ease and very little pain.

The abdominal operation is performed

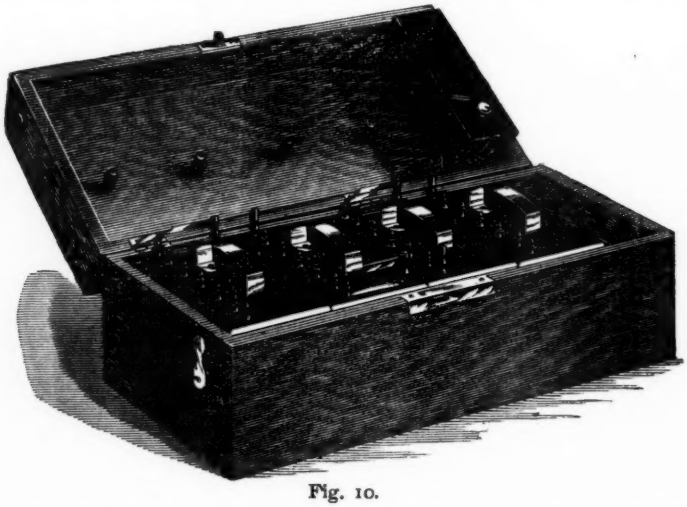

Fig. 10.

where the tumor is of the large subperitoneal variety, that cannot be safely attacked from the uterus or vagina, and where the tumor rises above the cavity of the pelvis and is in contact with the abdominal wall. Here, after necessary antiseptic precautions have been carried out, the needle is thrust through the abdominal wall into the substance of the tumor at its most prominent part, and is then connected with the negative pole of the battery. The other electrode, the same variety as described in the other operation, should be placed upon the abdomen in close proximity to the needle. The current should be 300 to 1,000 milliampères strength, and the duration of the operation ten minutes.

Battery.—The current of electricity

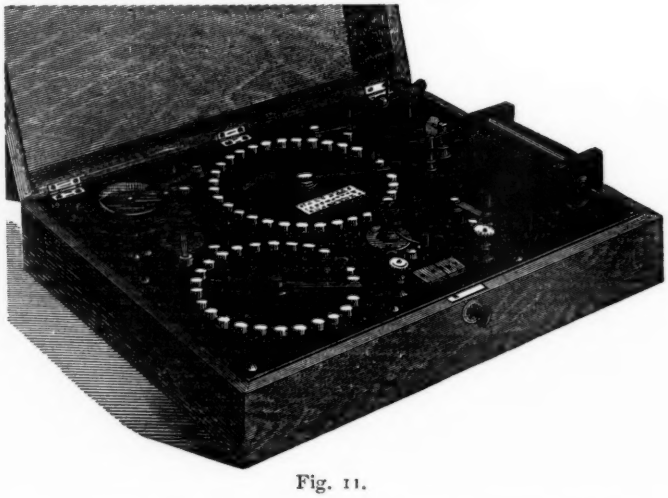

Fig. 11.

employed in gynæcological work should be uniform and without interruptions. Any means of generating electricity which will be practicable and at the same time answer the above require-

ments will be suitable for our purpose. I know of nothing better than some form of the chemical battery. For the ordinary purposes, where a working current required is not more than 50 to 75 milliampères, some form of the ordinary zinc and carbon cell with a solution of dilute sulphuric acid and bichromate of potash is suitable. The battery that I employ for this work is the one manufactured by McIntosh & Co., of Chicago. (Fig. 10.) It combines the advantages of many others, is simple in construction, easily cleaned and recharged, and combines a good faradic current with the galvanic. This battery is portable. For accomplishing more decided work and for a stationary battery in the office, the gravity cell, the diamond carbon, or the Lés Clàuchi cells are recommended. I use the ordinary crow-foot gravity cell. These should be connected with a switch-board, arranged in a manner that any portion of the battery can be used at will. For office battery I use 115 gravity cells, which are stored in a convenient closet and connected with a McIntosh switch-board (Fig. 11) by means of a cable of wires.

THE CURE OF FISTULA IN ANO WITHOUT OPERATION.

BY E. ANDREWS, M. D., L L.D., CHICAGO, ILL.

WHILE preparing the materials for a work on "Rectal Surgery" some interesting facts come to my knowledge. The general impression among physicians is that nothing will cure a fistula except a surgical operation; and, indeed, this is true with regard to many fistulas. But it is equally true that a large proportion of them are curable without any operation more serious than probing and injecting, and in such cases it is a duty to exhaust the milder measures before resorting to the severer. But it is necessary to make a proper selection of cases. Where the fistula leads to extensive pouches, or several complicated branches leading in different directions about the rectum, the non-operative methods are not likely to succeed in any moderate length of time. But where the fistula is simple and contains no large pouches, and leads pretty directly to an opening in the rectum, there is an excellent prospect of cure without any strictly operative procedures. The reason why a stricture does not cure itself is not altogether, as we have formerly supposed, the daily forcing through it of materials from the rectum. On the contrary, if the interior of the fistula be thoroughly antiseptisized throughout its entire length and into every curve and corner, and maintained in that purified condition, the ulcerative tendency which prevents contraction and healing is arrested. Granulations spring up through the whole length of the passage, and close it in spite of any moderate tendency of the rectum to force mucus, gas and fæces into its channel.

Naturally enough, the itinerant quacks who are traversing every part of the Mississippi Valley—and, for the most part, are so unskilled that they do not dare undertake a cutting operation—have been among the first to discover the success of the non-operative methods, though they are too ignorant to understand the principle on which they accomplish their cures. For instance, a man named Brinkerhoff, in Ohio, sells to itinerants for a price varying from $100 to $300, according to the gullibility of the purchaser, a little secret book of directions, constituting what is sometimes called the "Brinkerhoff System of Rectal Surgery." With this book of directions goes a little case containing about twelve dollars' worth of instruments, among which there is nothing by which an itinerant could possibly make an incision. He is too ignorant and cannot be trusted with edged tools; and, in fact, in his little book, Brinkerhoff says, in regard to fistula: "Never use the knife or ligatures." He directs the itinerant first to oil the interior of the rectum and the external integuments around. Next he is to inject the fistula thoroughly with an antiseptic mixture, and, taking a probe, churn the medicine thoroughly through every part of the fistula, and then, closing the external orifice with one finger, he is with the other finger to compress the external parts of the channel so as to compel the antiseptic to run thoroughly into the deeper parts. This accomplished he injects 10 or 15 drops of the following mixture:

℞ Distilled extract witch hazel.....fl ʒiii
Liquor of the persulphate of iron..fl ʒi
Carbolic acid.....grs ij
Glycerine.....fl ʒij
Mx.

The itinerant is then to apply an antiseptic mixture to the internal orifice of the fistula and to any ulcers in its vicinity. He is to repeat this treatment every two or four weeks, depending not on the welfare of the patient, but upon whether the quack is working a two-weeks' or a four-weeks' circuit. Other irregulars take the following course: First having explored the fistula well with a flexible probe, they wash out its channel with a solution of hydrogen peroxide. They then take equal parts of 95 per cent. carbolic acid and a 10 per cent. solution of

cocaine and inject carefully but thoroughly 10 to 15 minims of the mixture into the fistula. The patient is then to lie down about two hours, when he receives into the fistula an injection of equal parts of *Ol. eucalypti* and glycerin, with orders to keep quiet for two days more. These men have discovered that many fistulas can be cured by such antiseptic methods, although they generally do not understand the principle on which it is accomplished. Their ignorance of general science, however, need not deter us from observing the results of their experiments, and applying the principles involved in them for the benefit of our patients. Dr. Matthews, a regular physician of Louisville, has devised a treatment which may almost be called non-operative and by which he claims to have cured about twenty cases. His plan is the following: He takes a long slender laminaria tent, and, guiding it into the fistula as far as it will go, leaves it several hours to dilate the passage. He then takes Otis' curethrotome, and, insinuating it into the sinus, turns the screw and moderately dilates the channel, after which, by protruding the knife concealed in the tip of the instrument, he scarifies the interior. If necessary, he repeats the operation several times, thus making the passage straight and simple, giving it a free external opening, and by the irritation of the incisions arousing the growth of new granulations. If one wishes to try the completely non-operative plan, the best method of procedure is as follows: First, explore the interior and ascertain that it is simple enough to give the prospect of being able to make the injections reach all parts of it. Next, bear in mind that this fistula must have a free external opening, otherwise it will confine a quantity of septic pus in the interior, which, both by mechanical distension and irritant qualities, will arrest all efforts at healing. It is therefore best in many case to enlarge the external portion of the sinus with a bistoury or with a laminaria tent. This being accomplished, inject the whole interior of the fistula carefully with a good vigorous article (for that sold in the shops is very variable) of hydrogen peroxide. It will be better to inject this through a small catheter inserted into the deepest parts of the channel, or else throw it in by a syringe whose beak is large enough to completely fill the fistulous opening, so that the pressure shall compel the fluid to find its way into the remotests parts. Throwing the solution in repeatedly, and giving it time between the pulsations of the syringe for the foam produced by the action of the medicine on the pus to boil freely out, we next leave the patient quietly on the lounge an hour or two. Then with a small syringe insert about 10 minims of a solution of bichloride of mercury of the strength of one part to 3,000 of water. Repeat this once in about 3 or 5 days, taking pains not to throw large quantities of irritating solutions through into the rectum. This procedure alone will cure a considerable proportion of cases. But if greater thoroughness is required, some advantage will be gained by taking Allingham's rectal speculum and, exposing the internal orifice of the fistula, touch the opening with a stick of nitrate of silver where it enters the rectum, and place the patient in bed with a sheaf of three soft rubber catheters lying side by side in the rectum to give exit to the gases and mucus. The bowels should be previously emptied with a cathartic.

There has been a very general opinion in the profession that it is not expedient to cure a fistula where the patient is inclined to tuberculosis. Dr. E. E. Glover, of Terre Haute, Ind., has taken the pains to ascertain of a large number of surgeons, on both continents, their opinion on this subject, by which he discovers that there is apparently a very great change of opinion on this question. He finds that those who reply to the question as to whether they would operate in tuberculous cases the following who say yes: Allingham, Agnew, Andrews, Brinton, Brodie, Borck, Bonteson, Solis-Cohen, Cole, Francis Delafield, Eastman, Englemann, Gunn, Hamilton, E. F. Ingals, Lane, Linthicum, McGuire, Mathews, Moore, Owens. Prewitt, Peck, Raemy, Sayre, T. G. Richardson, of New Orleans, Roberts, of Philadelphia, Wight, Wilson, Varich and Taylor.

My own opinion is that there is no objection to curing the fistula in such cases. On the contrary, it is beneficial to the patient to do so. But it is true that where it is done by incision the wounds do not always heal well, and if the patient has but a year or two to live on account of his tuberculosis it seems scarcely worth while to submit to the annoyance of the operation. But this would be no reason why he might not be advantageously treated by gentle and non-operative methods, such as we have described.

CHRONIC MENINGITIS, WITH PARTIAL PARALYSIS.

A CLINICAL LECTURE BY N. S. DAVIS, JR., A.M., M.D., PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE IN THE CHICAGO MEDICAL COLLEGE, AND PHYSICIAN TO MERCY HOSPITAL.

THE history and appearance of the patient before you, and whose symptoms are somewhat unique, may thus be described. He is now about sixty years of age, and enjoyed good health until about five years ago. He was, however, always of a very nervous temperament. Six years ago he was involved in business troubles, which caused him much anxiety and worry. He began also to complain of the feeling of a band drawn tightly around his head which, as he expressed it, he wished he could cut. At the same time he began to grow timid, not being willing to go out or to be left alone. By degrees he became more and more dizzy, or rather uncertain, while walking. He felt that the floor was rising constantly to meet his feet. As these symptoms developed, his head began, also, to assume a retracted position, being drawn backward and held by the tensely contracted muscles of the neck. This symptom remained constant, but varied in intensity. The retraction seemed greatest while he was walking, especially while going down stairs.

About one year ago speech became imperfect, and swallowing became difficult. His eyes also began to fail, so that vision was imperfect.

He entered the hospital June 6th, 1885. His appearance has not materially changed since then. As you see, he now appears very feeble and emaciated. His head is constantly drawn backward, and as I attempt to draw it forward its rigidity in this position is manifest. His countenance appears wan, and to the observer the thought is constantly suggested that he is about to weep. The corners of his mouth are drawn down and his lips kept almost constantly apart. The muscles upon the right side of his face are relaxed, and appear as they do in one affected, to a moderate extent, by hemiplegia. His tongue, you observe, is protruded in a normal manner. Sight is dim, and most so with the right eye. Hearing, on the other hand, is noticeably acute. The sense of touch does not seem to be impaired. In answering questions you may have noticed that his speech is slow, low and thick or muffled. Swallowing is very difficult. As he takes the first teaspoonful of water you will probably see that it passes quite easily down the throat, although this is not uniformly so, but the second and third will be accompanied by much gurgling in the throat, and more will cause regurgitation into the mouth and an overflow through the lips, and distress about the neck. Occasionally, also, when regurgitation occurs, liquids escape in part through the nares. Owing to this inability to swallow well, the saliva is constantly dribbling from his half-open mouth, or is feebly expectorated at times. This condition causes very great annoyance and discomfort. The position of the head we have already noticed. He never during his sickness has complained of pain or tenderness about it. Often, however, the back of the head and neck feel hot.

The heart-beats I find to be fairly strong, but intermitting. There are two or three steady beats and then a flutter, which embraces probably two beats. The respiratory movements are somewhat feeble, and the lungs do not fill well. He does not cough. The inspirating sound is hitching at the apices of the lungs, and you notice that there is slight dullness in this region. He had no trouble in urinating until he entered the hospital. The first day after his arrival he was unable to micturate, and the catheter had to be used. This difficulty has not recurred. The bowels move only by an enema, which is administered every second day. The limbs are emaciated and weak. The muscles seem most feeble and least useful upon the right side. He is able, however, to make all the usual movements,

but he cannot stand without support, nor walk without assistance. He never sleeps longer than a few minutes or an hour at a time, and always awakes in a fright and often starts up from his bed. He is exceedingly timid, unwilling to be alone, and fearful that something will happen to him.

Interest in this case centers chiefly around the diagnosis. It is quite evident that we have to deal with a disease of the nervous system which has caused a partial paralysis of the muscles used in articulation and deglutition, and a constant contraction of the muscles of the neck. In considering the diagnosis of diseases of the nervous system, it is convenient always first to locate the lesion, as well as possible, and then to determine its nature. Interference with speech and deglutition may be produced by disease of the brain cortex, its deeper structure, and of the medulla or of the nerve trunks. An involvement of the nerves of speech and deglutition is not likely to take place bilaterally, as in this case, unless the lesion is one that involves their roots within the cranium. The origins of the hypoglossal, glossopharyngeal, pneumogastric, spinal accessory, and facial are close together, and diseases of the meninges, such as tumor and inflammation, have been known to involve a part or all of them simultaneously. Disease of the brain that would involve speech and deglutition invariably, we may say, is accompanied by paralysis of other portions of the body, and only rarely produces symmetrical paresis. Lesions in the medulla may produce very similar symptoms to those we see here. In many ways cases of that somewhat rare disease known as progressive bulbar paralysis, or glosso-labio-laryngeal paralysis, resembles this one. One of the earliest symptoms in progressive bulbar paralysis is difficulty of speech. The tongue is not perfectly under command. Not only is there an inability to use it properly but an atrophy of it. By these changes speech is interfered with and also the act of swallowing; next, usually, the lips are affected by both partial loss of motion and atrophy. The aspect is peculiar and very similar to that of the patient before us. The mouth is constantly about half open, the lower lip drooping, the corners of the mouth being drawn down. The whole countenance presents a lachrymose appearance. Usually saliva dribbles from the mouth. The pharyngeal and laryngeal muscles are atrophied and paretic. In this disease there is degeneration of the nuclei in the medulla, which give origin to the nerves of speech and deglutition. As a result of the involvement of the nuclei we find both loss of motion and atrophy of the muscles. In the case before us, however, there is no atrophy of the muscles of the lips, tongue or soft palate. In progressive bulbar paralysis, where the muscles of the neck are involved, it is in atrophy which causes a constant forward drooping of the head, but in the present case the reverse of this is seen; there is retraction of the head and rigidity of the muscles of the back of the neck. The history of this patient does not correspond closely with that of bulbar paralysis. We may therefore reject this from the possibilities in forming our diagnosis. The other lesions confined to the medulla are acute ones, as, for example, hæmorrhage into the medulla or embolism or thrombosis and inflammation or acute bulbar paralysis. Not only are these diseases sudden in their onset, but acute in their course and usually, at least in the onset, the symptoms are not so strictly local.

We have left to consider the possibility of a tumor or of chronic meningeal inflammation as a cause of the symptoms. Tumors in this region are usually accompanid by intense pain and vomiting. Paralysis of the ocular nerves often is produced but not so often of the muscles of speech and deglutition. The diagnosis of tumors of the medulla is difficult to make, for the symptoms produced by them are quite variable, the most common, however, being those mentioned. Could a chronic inflammation of the meninges cause the symptoms that we find here? This question must be answered in the affirmative, and without doubt this is the most plausible diagnosis of this case. By such inflammation the nerves are involved at their roots, so as

to be functionally imperfect. The retraction of the head also suggests inflammatory irritation of the upper part of the cord or cervical nerves. The heat that is noticed at times about the back of the neck and head might be expected under these circumstances. Usually pain is a prominent symptom of meningeal inflammation, and somewhat singularly this patient has never complained of pain. The girdle sensation about the head is the nearest approach to pain of anything of which he has spoken.

As regards the ætiology of inflammation in this region, it is said most frequently to be the result of syphilitic or alcoholic poisoning. Intense and protracted anxiety, injuries, continued fevers, epidemic cerebro spinal meningitis, rarely acute meningitis and suppurative otitis are other causes. There is in this case no history of syphilitic infection or alcoholic excess, or of injury, or fever, or prior meningitis of any kind. There is, however, a history of intense and prolonged mental anxiety and worry.

The prognosis must be an unfavorable one. The case has been of so long standing that if ever there was hope of cure there can be scarcely any now. The treatment has been chiefly palliative, although some drugs have been employed with the hope of modifying the morbid processes, but unavailingly. For this latter purpose the iodides chloride of gold, ergot and physostigma have been used faithfully. Sleep cannot be deepened or prolonged without rendering him stupid with very large doses of opiates or other hypnotics.

CLINIC AFTER AUTOPSY.

Gentlemen: You will recall the case of an old gentleman who was shown to the clinical class a month and a half ago, whose symptoms pointed to an involvement of the medulla or bulbar nerves, and in regard to whom we made the probable diagnosis of meningitis about the medulla, and possibly the upper part of the cord.

The patient remained in practically the condition in which he was seen by you from the time he entered the hospital until August 10th, when he began to complain of pain in the bowels and had frequent passages, mostly fluid, with small particles of dry, hard fæces. The pain caused considerable suffering. It was partly allayed by full doses of opiates. After the second day he became very dull; respiration was shallow and there were signs of œdema of the lungs. The right half of the body seemed also less perfectly under control of the will than before. His respiratory movements grew gradually weaker until death occurred. An autopsy was made a few hours later. On opening the cranial cavity the walls of the membranes appeared full of dark blood. The membranes also were distended by an accumulation of serum beneath the pia meter. Adhesions between dura and pia mater were present over the upper surface of the cerebrum near the central line. There were here and there in the pia mater and below it, extending into the sulci, white opaque and firm patches, evidently of inflammatory origin. The pachionian bodies were more numerous than normal, and about them the minute vessels were distended with blood. The dura and pia maters were thickened in places. There were also adhesions between the cerebellum and the cerebrum on the left side. About the upper portion of spinal column and medulla there were close adhesions and bands of new tissue. These had to be dissected away before the brain could be removed. The adhesions were particularly close about the hypoglossal, but involved the neighboring nerve roots to some extent. They were firmest, also, upon the right side. The ventricles were distended slightly with serous fluid. A microscopical examination of medulla revealed no abnormal appearances. There was nothing in the changes in the other organs that threw light upon the early history of the case.

The pericardium, the pericardial cavity and the heart were normal in size, shape and structure. Old and firm pleural adhesions were found over the right lung. On section, the lungs appeared œcleastian, with near the apex a few quite small firm patches of cirrhosis, and with here and there small neighboring patches of emphysema. The left lung was free in its pleural cavity and

presented appearances exactly corresponding to those of the right. The areas of firm cirrhosis were, however, more numerous.

The kidneys were small and soft. The capsule slightly adherent. The cortex, especially near the middle, was narrow, pale and grayish yellow.

The liver was normal in size, shape and consistency, but somewhat paler than natural.

Nothing abnormal was observed about the stomach, intestines or bladder.

The autopsy, therefore, shows clearly that the case was one of chronic inflammation of the meninges, chiefly about the medulla and base of the brain.

MEDICAL LEGISLATION.

THE ILLINOIS AMENDED PRACTICE ACT.

FOLLOWING is the new medical practice act passed by the General Assembly of Illinois at its recent session, and which went into effect July 1st:

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly*, That no person shall practice medicine in any of its departments in this State unless such person possesses the qualifications required by this act. If a graduate in medicine, he shall present his diploma to the State Board of Health for verification as to its genuineness. If the diploma is found genuine, and from a legally chartered medical institution in good standing, and if the person named therein be the person claiming and presenting the same, the State Board of Health shall issue its certificate to that effect signed by all of the members thereof, and such certificate shall be conclusive as to the right of the lawful holder of the same to practice medicine in this State. If not a graduate, the person practicing medicine in this State shall present himself before said board and submit himself to such examination as the board may require, and if the examination be satisfactory to the board, the said board shall issue its certificate in accordance with the facts, and the lawful holder of such certificate shall be entitled to all the rights and privileges herein mentioned.

SEC. 2. The State Board of Health shall organize within three months after the passage of this act, it shall procure a seal, and shall receive through its secretary, applications for certificates and examinations; the president and secretary shall have authority to administer oaths, and the board to take testimony in all matters relating to its duties: it shall issue certificates to all who furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing as may be determined by the board; it shall prepare three forms of certificates, one for persons in possession of such diplomas or licenses, the second for candidates examined and favorably passed on by the board, and a third for persons to whom certificates may be issued as hereinafter provided in section 12 of this act; it shall furnish to the county clerks of the several counties a list of all persons receiving certificates. In selecting places to hold its meetings, it shall, as far as is reasonable, accommodate applicants residing in different sections of the State, and due notice shall be published of all its meetings for examination. Certificates shall be signed by all the members of the board, and the secretary of the board shall receive from the applicant a fee of five (5) dollars for each certificate issued to such graduate or licentiate. Graduates or licentiates in midwifery to pay the sum of two (2) dollars for each certificate. All such fees for certificates shall be paid by the secretary into the treasury of the board.

SEC. 3. The verification of the diploma shall consist in the affidavit of the holder and applicant that he is the lawful possessor of the same, and that he is the person therein named. Such affidavit may be taken before any person authorized to administer oaths, and the same shall be attested under the hand and official seal of such officer, if he have a seal; and any person swearing falsely shall be deemed guilty of perjury, and punished accordingly. Graduates may present their diplomas and affidavits as provided in this act, by letter or by proxy, and the State Board of Health shall issue its certificate the same as though the owner of the diploma was present.

SEC. 4. All examinations of persons not graduates or licentiates, shall be made directly by the board, and the certificates given by the board shall authorize the possessor to practice medicine and surgery in the State of Illinois.

SEC. 5. Every person holding a certificate from the State Board of Health shall have it recorded in the office of the clerk of the county in which he resides within three months from its date, and the date of recording shall be indorsed thereon. Until such certificate is recorded as herein provided the holder thereof shall not exercise any of the rights or privileges conferred therein to practice medicine. Any person removing to another county to practice shall record the certificate in like manner in the county to which he removes, and the holder of the certificate shall pay to the county clerk the usual fees for making the record.

SEC. 6. The county clerk shall keep, in a book provided for the pnrpose, a complete list of the certificates recorded by him, with the date of the issue of the certificate. If the certificate be based on a diploma or license, he shall record the name of the medical institution conferring it, and the date when conferred. The register of the county clerk shall be open to public inspection during business hours.

SEC. 7. The fees for the examination of non-graduates shall be as follows: Twenty (20) dollars for an examination in medicine and surgery; ten (10) dollars for an examination in midwifery only; and said fees shall be paid into the treasury of the board. If an applicant fails to pass said examination his or her fee shall be returned. Upon successfully passing the examination the certificate of the board shall be issued to the applicant without further charge.

SEC. 8. Examinations may be made in whole or in part in writing, and shall be of an elementary and practical character, but sufficiently strict to test the qualifications of the candidate as a practitioner.

SEC. 9. The State Board of Health may refuse to issue the certificates provided for in section 2 to individuals guilty of unprofessional or dishonorable conduct, and may revoke such certificates for like causes. In all cases of refusal or revocation the applicant may appeal to the Governor, who may affirm or overrule the decision of the board, and this decision shall be final.

SEC. 10. Any person shall be regarded as practicing medicine, within the meaning of this act, who shall treat, operate on, or prescribe for any physical ailment of another. But nothing in this act shall be construed to prohibit service in cases of emergency, or the domestic administration of family remedies. And this act shall not apply to commissioned surgeons of the United States Army, Navy or Marine Hospital Service in the discharge of their official duties.

SEC. 11. Any itinerant vendor of any drug, nostrum, ointment or appliance of any kind, intended for the treatment of disease or injury, or who shall, by writing or printing or any other method, profess to cure or treat any disease or deformity, by any drug, nostrum, manipulation or other expedient, shall pay a license of one hundred (100) dollars per month into the treasury of the board, to be collected by the State Board of Health, in the name of the People of the State of Illinois for the use of said Board of Health. And it shall be lawful for the State Board of Health to issue such license on application made to the State Board of Health, such license to be signed by the President of the Board, and attested by the secretary of the board, with the seal of the board. Any such itinerant vendor who shall vend or sell any such drug, nostrum, ointment or appliance without having a license so to do, shall, if found guilty, be fined in any sum not less than one hundred dollars, and not exceeding two hundred dollars for each offense, to be recovered in an action of debt before any court of competent jurisdiction. But such board may for sufficient cause refuse such license.

SEC. 12. Any person practicing medicine or surgery in the State without the certificate issued by this board in compliance with the provisions of this act, shall for each and every instance of such practice forfeit and pay to the people of the State of Illinois for the use of the said State Board of Health the sum of one hundred (100) dollars for the first offense, and two hundred (200) dollars for each subsequent offense, the same to

be recovered in an action of debt before any court of competent jurisdiction, and any person filing or attempting to file as his own the diploma or certificate of another, or a forged affidavit of identification, shall be guilty of a felony, and upon conviction, shall be subject to such fine and imprisonment as are made and provided by the statutes of the State for the crime of forgery: *Provided:* that all persons who have been practicing medicine continuously for ten years within this State prior to the taking effect of the act to which this is an amendment, and who have not under said original act obtained a certificate from said Board of Health to practice medicine in this State, shall upon proper application to said Board of Health receive such certificate, unless it shall be ascertained and determined by said Board of Health that the person so applying for a certificate is of immoral character, or guilty of unprofessional or dishonorable conduct, in which case, said Board of Health may reject such application: *And, provided,* that such application for a certificate shall be made within six months after the taking effect of this act; and all persons holding a certificate on account of ten years' practice shall be subject to all the requirements and discipline of this act, and to the act to which this is an amendment, in regard to their future conduct in the practice of medicine the same as all other persons holding certificates, and all persons not having applied for or received such certificate within six months after the taking effect of this act, and all persons whose applications have for the causes herein named been rejected or certificates revoked, shall, if they shall practice medicine, be deemed guilty of practicing in violation of law, and shall suffer the penalties herein provided.

SEC. 13. Upon conviction of either of the offenses mentioned in this act, the court shall, as part of the judgment, order that the defendant be committed to the common jail of the county until the fine and costs are paid, and upon failure to pay the same immediately the defendant shall be committed under said order. *Provided,* that either party may appeal in the same time and manner as appeals may be taken in other cases, except that where an appeal is prayed in behalf of the people, no bond shall be required to be filed, whether the appeals be from a justice of the peace, or from the county or circuit court, or from the appellate court. But it shall be sufficient, in behalf of the people of the State of Illinois, for the use of the State Board of Health, to pray an appeal, and thereupon an appeal may be had without bond or security.

SEC. 14. All acts and parts of acts inconsistent or in conflict with this act are hereby repealed.

THE ILLINOIS BOARD OF HEALTH.

THE regular quarterly meeting of the Illinois State Board of Health was held in Chicago on the 8th instant. There were present Drs. W. A. Haskell, Alton, President ; A. L. Clark, Elgin ; G. N. Kreider, Springfield ; W. H. Mackenzie, Chester ; and Dr. John H. Rauch, Chicago, Secretary. The Secretary called attention to the terms of the act passed by the last General Assembly, and moved that the members proceed to organize in accordance therewith, the officers and committees of the old organization to be continued. The motion was carried.

The following resolution was adopted:

"*Resolved*, That this board reaffirms the action of the State Board of Health taken May 2, 1885, in revoking the certificate of John C. McCoy on charges of unprofessional and dishonorable conduct then presented and the findings against him on such charges."

The Secretary presented the applications of sundry itinerant venders of drugs, nostrums, etc., eight in number. After a full discussion of the subject Dr. Kreider offered the following resolution, which was adopted:

"*Resolved*, That the applications now pending by itinerant venders of drugs, nostrums, etc., for license to sell and the tender of the fee of $100 per month for each such license be declined in the exercise of the discretion vested in this board by Sec. 11 of the Act to regulate the Practice of Medicine, such itineracy and the manner of vending being deemed prejudicial to the public welfare."

Dr. Mackenzie offered the following, which was also adopted :

"*Resolved*, That conviction of the charge of criminal abortion performed or procured by a practitioner of medicine or midwife shall be held as cause for the refusal or summary revocation of the certificate of this board."

Dr. John A. Rauch, Secretary of the board, reported that there were issued to graduates upon diplomas from medical colleges in good standing 154 certificates since the last meeting of the Board, and to six others on examination ; also four to non-graduates upon proof of twenty-one years' practice in the state, and one duplicate. Fifteen applications for certificates were rejected through inability of applicants to comply with the requirements. Certificates were issued to twenty-eight midwives. Few laws have done more for the practical welfare of the community than the Act to Regulate the Practice of Medicine in Illinois for the last ten years, and the brief record was the best earnest for the future of the faithful and conscientious discharge of the added responsibilities devolved upon the board by the new act approved June 17, 1887. The original law took effect July 1, 1877, and by its terms the following six months were allowed in which to comply with its requirements. During this period it was learned that there were in round numbers July 1, 1877, an aggregate of 7,400 persons engaged in the practice of medicine in Illinois. Of these about 3,800, or more than half, were non-graduates, and these comprised all classes, including those who had assumed the title of "Doctor" without any medical study whatever. The following table gives a comparative exhibit of the status of the profession at the beginning and at the end of these ten years. Comparison of the total number and classes of physicians in the state July 1, 1877, and July 1, 1887:

	July 1, 1877.	July 1, 1887.
Total number engaged in practice	7,400	6,180
Graduates and licentiates	3,600	5,704
Non-graduated	3,800	476
Percentage of graduates and licentiates	48.6	92.3
Percentage of non-graduates	51.4	7.7

When the law went into effect there

were 1,923 physicians in the state who were not qualified and therefore could not comply with its provisions. Of these by far the greatest number left the state, others abandoned practice, while many qualified themselves and graduated or passed the examinations of the board. In addition the board refused during the year 1878 278 applications for certificates ; in 1879, 175; 1880,154; 1881,127; 1882,111; 1883,98; 1884, 185; 1885, 75; 1886,73; and thus far in 1887, 25, making a total of 3,129. Since the organization about 2,000 complaints involving the professional conduct of the licentiates of the board have been received. Nearly all were settled. Thus far this season the conditions affecting the public heath have been quite satisfactory, there being nothing in the state to excite public uneasiness. Occasional small-pox cases have occurred, and measles has been the prevailing sickness in many sections. Yellow-fever at Key West has thus far been confined to that quarter, and carefulness here will better fortify us against any danger from cholera.

Dr. Clarke offered the following resolution, which was adopted:

"*Resolved*, That the phrase "medical colleges in good standing" in the first section of the act to regulate the practice of medicine, approved June 16, 1887, is hereby defined to include only those colleges which shall, after the sessions of 1890–'91, require four years of professional study, including any time spent with a preceptor and three regular courses of lectures, as conditions of graduation, and shall otherwise conform to the schedule of minimum requirements heretofore adopted by the board."

The Secretary was instructed to prepare forms of weekly mortality reports for the use of localities where returns of death are made.

EDITORIAL.

THE INTERNATIONAL MEDICAL CONGRESS.

The latest reports that are reliable go to show that the scientific work of the Congress will be of a high order. Nothing can prevent a grand success, scientifically speaking. We are informed that a sufficient number of papers have already been promised by members from abroad to occupy the whole time of each section. This is surely a good endorsement of the Congress. If the above statement is true, it follows of necessity that a large number of foreign physicians and their families will visit this country in September; and, while ostensibly they come on purely scientific business, yet much will be expected in a social way.

The time has come when it is necessary that large amounts of money be placed at the disposal of the management. As already said, from a scientific standpoint the congress will be a decided success; but we admit with much reluctance the fact that when the pocket-book is tapped the outflow is extremely small. Some of the state and local societies have done their share in the way of contributions. Illinois has contributed $750, and many other states equally well. But in some portions of the country the available amounts have been very small. In this connection we cannot but regret the action taken at the last meeting of the American Medical Association. For an association which invited the Congress to visit this country, and which is to act as host to the visiting members, to contribute the paltry sum of one thousand dollars seems ridiculous. No plea of lack of funds in the treasury is sufficient to excuse the association. It ought to have been the business of the officers to see that at least a respectable sum was kept in the treasury for the expenses of the Congress if the Association should direct its expenditure in that way.

With an income of over twenty thousand dollars, and with a journal which ought to pay a handsome revenue into the treasury, nothing short of a contribution of five thousand dollars would seem in proportion to the amounts contributed by state and local societies. Not having sufficient funds in the treasury to make a respectable contribution, it would have been a proper thing for the association to have levied a special assessment of, say, one dollar on each member. This would have furnished at least four thousand dollars.

The amounts needed must be made up by private contributions. The sooner these are forwarded the more good will they do. Let every one give something, and let it be done speedily and with good cheer. The profession in America cannot afford to neglect the proper entertainment of its guests, and must do individually what its representative body has failed to do.

CHANGES IN THE CONSTITUTION OF THE AMERICAN MEDICAL ASSOCIATION.

The report of the Committee appointed at the St. Louis meeting under the following resolution excited much debate:

Resolved, That a committee of nine members, including the President, the President-elect and the four Vice-Presidents-elect, be appointed by the chair to consider the various propositions looking to the amendment of the organic law of the association by the *establishment of branches*, or in any other way; said committee to report at the next regular annual meeting what measures of organization, if any, may be desirable.

The report was quite lengthy and did not recommend any radical changes in the organic law of the association.

It is recommended that the amendment to section II, relating to "members by application," be so amended as to read:

Members by *Application* shall consist of such members of the State, County and District Medical Societies entitled to representation in this Association, as shall make application in writing

to the Treasurer, and accompany said application with a certificate of good standing signed by the President and Secretary of the society of which they are members, and the amount of the annual membership fee, $5. They shall have their names upon the roll and have all the rights and privileges accorded to *Permanent Members*, and shall retain their membership on the same terms.

This we consider an exceedingly wise amendment, allowing, as it does, members of any recognized state or local society to become permanent members without attendance upon an annual meeting.

The committee recommended that, from the *fifth section* of the *Constitution*, relating to "*Standing Committees*," the *first* and *third paragraphs* should be stricken out, leaving intact only the second paragraph, relating to the "Committee of Arrangements." In place of the first paragraph they advised the insertion of the following important provision, viz.:

The General Committee or Council shall be composed of *two members* from each State and Territorial Medical Society entitled to representation by delegates in the Association, and from the Medical Departments of the U. S. Army, Navy and Marine Hospital Service. They shall be chosen by the members registered and present at each annual meeting, from each State, Territory, and from the Medical Corps of the U. S. Army, Navy and Marine Hospital Service, acting separately, on the third day of each annual meeting; each delegation reporting the names of the members chosen to the Permanent Secretary of the Association on the same day, that they may be announced by him at the opening of the morning session of the fourth day. At the first election each delegation shall choose *two* members of the General Committee, one of whom shall serve *one* year and the other *two* years, and at each annual election thereafter one member shall be chosen to serve for two years, thus making the term of office of members of the General Committee *two* years. It shall be the duty of the General Committee, thus constituted, to organize by choosing annually a Chairman and Secretary, and such sub-committees as may be found necessary to facilitate the work that may be assigned to it; to meet annually at the place and on the day preceding each annual meeting of this Association, and as often during that week as may be necessary; to nominate, on the third day of each annual meeting, all the general officers of the Association (none of whom shall be members of its own body), the members of the Committee of Arrangements, the Committee on Necrology, seven members of the Judicial Council, and three members of the Board of Trustees for Publication for election by the Association; to recommend the place and time for holding the next annual meeting; and to consider and report upon all subjects that may be referred to it by vote of the Association. The presence of one-third of the whole number of members elected to the General Committee shall constitute a quorum for the transaction of business. If, at any annual meeting of the Association, it shall be found at the close of the general meeting of the first day that a quorum of the General Committee is not present, it shall be the duty of the President and Permanent Secretary to fill the vacancies in the Committee temporarily by selections from the lists of delegates registered as present from the States to which the vacancies belong.

We confess that the wording of this section is to us very ambiguous. According to our interpretation it has some very objectionable features. We believe the object of the committee was to avoid wire pulling or manipulating the committee entrusted with nominating officers. If the proposed amendment is adopted at Cincinnati it will furnish the best opportunity that could be desired to further personal ambitions. If it were possible to influence a committee in a few hours, what will not be possible in a whole year or two? We think this committee should have general supervision of the business affairs of the association, but the committee to whom is entrusted the nomination of officers should be selected on the morning of the third day of each annual meeting and report on the morning of the last day. This would reduce to a minimum the chances for any individual to further personal or other ambitions. It must be admitted that a medical association is human, and that if by any honorable means the methods of the better class of politicians can be carried out they will most assuredly be prosecuted with a vigor that might surprise the veteran statesman. Every possible measure should be guarded against which will permit, as one member well said, of all the business of the association being transacted by members on the stage.

The committee recommends the adoption of the following provision and its incorporation in

the Constitution, as a substitute for the third paragraph of section five relating to the "Committee of Publication," viz.:

The *Board of Trustees* shall consist of nine members, three of whom shall be elected annually on the nomination of the standing General Committee, and shall serve for three years. It shall be the duty of this Board to provide for and superintend the publication and distribution of all such proceedings, transactions, and memoirs of the Association as may be ordered to be published, and in such manner as the Association may direct; and in doing this, it shall have authority to appoint an editor and such assistants, and determine their salaries, and procure and control such materials as may be necessary for the accomplishment of the work assigned to it. To further facilitate its work, it shall be the duty of the Secretaries of the Association and of the several Sections, during each annual meeting, or as soon thereafter as practicable, to deliver to the Board, or such editor or agent as it shall appoint, all such records of proceedings, reports, addresses, papers, and other documents as may have been ordered for publication, either in the general sessions or in the Sections. All moneys received by the Board of Trustees or its agents, resulting from the discharge of the duties assigned them, must be paid to the Treasurer of the Association, and all orders on the Treasurer for disbursements of money in any way connected with the work of publication, must be endorsed by the President of the Board of Trustees. It shall be the further duty of the said Board of Trustees to hold the official bond of the Treasurer for the faithful execution of his office; to annually audit and authenticate his accounts, and present a statement of the same in its annual report to the Association; which report shall also specify the character and cost of all the publications for the Association during the year, the number of copies still on hand, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary.

The wisdom of adopting this provision, in its entirety, we doubt. It will be noticed that the Board of Trustees are required to turn over all moneys into the hands of the Treasurer; that all orders on the Treasurer for the disbursement of funds must be endorsed by the President of the Board of Trustees; and farther, that the Board of Trustees holds the official bond of the Treasurer and audits his accounts. This plan, if adopted, will make a very pretty mutual admiration society. The Board of Trustees incurs nine-tenths of the whole expense of the Association, its orders are paid by the Treasurer, and then the Board audits its own accounts. How could it find a mistake or any evidence of extravagance under such a complete system of oversight? The business management of the Association has been too long at fault. In these times it is as necessary that the affairs of a medical association should be conducted according to business principles as that a banking institution is held to strict accountability for its acts. The proposed changes in the constitution will be voted on at the next meeting in Cincinnati. They should be most carefully considered by every member of the profession that the action there taken may be for the best interests of the association as a whole.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The forthcoming meeting of the Mississippi Valley Medical Association will be one of great importance to that body. Since the adoption of the code of ethics as part of its organic law, the association has had a most remarkable development. It is intensely loyal to the American Medical Association, but believing that body too large and unwieldy to consitute a good *working* society from a scientific point of view, it has taken to itself the work of establishing in the West and South a society which shall stand upon principles broad and comprehensive, having for its first object a high grade of scientific work from its members.

The chief features of importance in this association, as we understand them, are, *a*, its method of membership. It is a non-delegate body. If the constitution which is to reported at the next meeting is adopted, membership will be limited to those members of the profession of medicine who acknowledge allegiance to the American Medical Association by signing its code of ethics. This requirement we consider simple, and at the same time ample enough to meet all emergencies. *b*. The manner of disposing of its transactions and scientific com-

munications. Believing that the time has passed when it is proper to bury scientific communications in a volumn called "Transactions," which appears frequently as late as one year after the meeting, the Mississippi Valley Medical Association lays no restrictions whatever upon contributors except that contributions presented to the society shall not appear in any but the regular medical journals.

With these two important features in its constitution, we cannot but believe that the association will become one of the foremost in the country.

But there are other things to which this society might well turn its attention. We believe that, instead of a long array of papers upon hackneyed subjects, this association should give its attention to some of the live questions of the day. It might with much profit to itself and others devote considerable time to the discussion of such subjects as "The present condition of our public schools and its effect upon the health of the the young," "Manual training," "The organization of the medical profession," and many others of equal importance.

INSANE PAUPER IMPORTATION

Too much praise cannot be accorded to the Collector of the Port at Boston for his stand concerning the importation of insane paupers. The steamship Cephalonia, of the Cunard line, arrived at Boston bringing among its passengers a woman bearing every evidence of insanity, though not of a violent type. The Superintendent of the State Board of Lunacy and Charity refused to allow her to land, as by so doing she would become a burden on the state. The officers secretly disposed of the woman, and the company was notified that unless she was returned clearance papers would not be granted. The matter was brought to the notice of the Collector. The hearing was private and did not occupy much time, as it was evident that the company had violated the statutes. In making his decision the Collector said: "I shall impose a fine of $1,000 on the Cunard Steamship Company for landing at this port an insane person named Johannah Casey. Whenever I receive a check for that amount I will furnish the necessary papers for the clearance of the steamer Cephalonia, and not until then. Before that check is used the company will be given an opportunity of presenting the case to United States Secretary of the Treasury Fairchild, and I shall, of course, be governed by his decision."

There can be no doubt of the justice of this decision. The authorities should no longer permit this country to be made an asylum for the paupers, the insane, and the general riff-raff from every nation on the face of the earth. It is to be hoped that the Secretary of the Treasury will sustain the decision of the Collector. There is abundant evidence that many of the countries across the water actually pay the passage rate to this country for the vagrant and pauper population rather than support them at home, and up to this time there has been no one to say them nay. The decision in the above case is one that should be followed up in many similar cases which occur at the different ports every day.

DOMESTIC CORRESPONDENCE.

LACK OF INTEREST IN THE DISEASE OF INEBRIETY BY THE GENERAL PROFESSION.

To the Editor of the Chicago Medical Journal and Examiner:

WHEN we reflect upon the fact that an insane temperament, which may be transmitted to offspring, may be established by the alcohol habit; that the alcoholic appetite may originate in moderate indulgence to become fixed and hereditary; that epilepsy, hysteria, idiocy and insanity result from the alcohol habit and become hereditary; that the people of the United States spent, in the period of eleven years, for alcohol more than the entire value of their agricultural, mechanical and manufacturing products; that 33⅓ per cent. of all deaths in New York, and probably a similar per cent. in every large city, are occasioned, directly or indirectly, by the use of alcoholic drink; that from 13 to 25 per cent. of all cases of insanity become insane through alcoholic drink; that the progeny of alcoholics are peculiarly liable to degenerations of the nervous system; that the alcoholic habit is antagonistic to the highest standard of bodily health and vigor and of capacity for work—then every thoughtful physician must realize that we have before us one of the deadliest evils that curses modern society, and we can but wonder at the astonishing apathy that exists in regard to the importance of a thorough knowledge of the disease of inebriety in the daily work of every member of the profession.

The chief study in this direction ought not to be limited to the very small band of specialists in the profession who come together at the annual meetings of the American Association for the Cure of Inebriates. Such an association should number its hundreds of members. The disease of inebriety does not chiefly fall, in its practical relations, within the working limits of this exceedingly small band of specialists in the profession, nor is its study so difficult as to be at all impossible to the busy practitioner. He is the one who first meets with it in its early curable stage, and it should be alike his duty and his pleasure to instruct the public that the effects of alcohol penetrate to every part of the living body; that there are but few blood vessels; not a muscle; not an active part of any of the membranes; not a secreting gland, small or large; not an organ of sense; not a single viscus, whether pelvic, abdominal or thoracic, which is not interpenetrated by alcohol, when the alcohol habit be indulged in. It causes marked changes in the rate and force of the heart's action; in the tonicity of the muscular arteries; alters temperature; causes changes in rate of action of gland and muscles; causes changes in the varied forms of sensibility, from the most general to the most special, and the most grave changes of all in the most exalted of all functions comprised under the head of mind and mental operations, until, finally, the co-ordination function in the brain is overthrown and the consciousness of personal identity and responsibility are destroyed.

Alcoholic inebriety is a disease, and curable as other diseases are, and a very much larger per cent. of cases can be cured by regular systematic treatment than is now supposed. Merely keeping a patient away from liquor is the smallest and most unimportant part of treatment. The whole system, which is shattered and broken down, has to be invigorated and restored to its normal standard, and the brain and nervous system must be brought up to the highest resisting point, before the lost will-power is restored and the irresistible craving for alcohol cured. There is no disease of the nervous system more grave and more worthy of the most careful study and attention than dipsomania. It is a true periodic insanity, and only the most careful treatment, continued for months, can cure it. The treatment must be careful, methodical and intelligent, the physician recognizing the fact that he

has to deal with a physical disease. If the profession will so regard it, and aim to instruct the communities in which they live as to the physiological effects of alcohol on the human body—that, primarily, it produces congestion from want of vaso-motor control, loss of muscular control, perversions of judgment and will-power, and absolute prostration of nerve power, while, secondarily, it causes hypertrophy of the heart, structural diseases of the stomach, brain, liver and kidneys; alcoholic dyspepsia; alcoholic phthisis and a multitude of nervous lesions which may end in alcoholic dementia, in which personal identity and responsibility are lost, and whose earliest symptoms are loss of memory, failure of speech and manifestations of moral obliquity, and finally delirium tremens, mania a potu, and perhaps chronic insanity. If the profession, we repeat, will so instruct their communities as to the action of alcohol on the functions of the human body, the science of preventive or state medicine will owe to such men an incalculable debt of gratitude for disease and death prevented and much domestic misery averted.

EDWARD C. MANN, M.D.

No. 128 Park Place, near Prospect Park, Brooklyn, N. Y.

MISCELLANY.

Metaphysical Healing.

It would scarcely seem worth while for the editor of the *Century Magazine* to devote seventeen pages of the valuable space of that periodical to combating the proposition that disease is purely a mental phenomenon. And yet there is one "college in Massachusetts, two in New York City, one in Brooklyn, four in Chicago and one in Milwaukee whose courses of instruction" are based upon that principle. The theory is that matter experiences no sensation, and that the physical body can no more be diseased in reality than a bar of iron can. Hence all human disease is in the mind, for the simple reason that it must be there or nowhere.

The Rev. Dr. Buckley thinks the spread of this doctrine of enough importance to be met seriously, and devotes himself accordingly to the task in the *Century*, as above mentioned. And he furnishes an interesting paper on the subject. The central point from which this nonsense radiates is the "Massachusetts Metaphysical College." It could not be called "medical," since medicine has no part in the "Science of Metaphysical Healing." It is so far above medicine that the latter is scarcely worth talking about. The course of instruction is short and quick. There is a "Primary class," each member of which pays $300 for twelve lessons; a "Normal Class," which pays per pupil $200 for six lectures, and a "Metaphysical Obstetrics Class," each student paying $100 for six lectures.

The treatment is very simple. The sole seat of the disease being in the mind, the mind alone is to be doctored. Convince a person with rheumatism that the rheumatism is all in his mind, or metaphorically, all in his eye, and he can cast it out. If you sit down on a grassy bank and a bumble-bee you need not get up unless you think you must, for the sensation cannot be anywhere but in your mind; and if you keep it out of your mind, or, in other words, do not mind it, you are all right. Faith cure is an incidental branch of the science. Apparently a number of people —who would have got well anyhow— have been cured under this treatment and thus reinforced the delusion. The only grain of substance in it all is that there is a therapeutic value in a hopeful and cheerful state of mind in some cases.—*The World.*

Deaths Among the German Philosophers.

Death has been at work in Berlin among the German medical philosophers with great force this year. In the last few weeks two well-known and learned men have died whose names are not unknown in America. One is Wilhelm Hack, whose theory of the erectile tissue upon the turbinated bones created so much interest some years ago. The second is the pathologist, Carl Friedländer, a name connected with many valuable discoveries, but chiefly with a discovery bearing his name, the pneumococcus.—*Berlin letter in the Therapeutic Gazette.*

THE AMERICAN MEDICAL ASSOCIATION.

THIRTY-EIGHTH ANNUAL MEETING.

The thirty eighth annual meeting of the American Medical Association was called to order in Central Music Hall, Chicago, at 11:05 A. M., Tuesday, June 7th, by Dr. Charles Gilman Smith, Chairman of the Committee of Arrangements. The following members were in attendance:

ALABAMA.

Wm. C. Cross, Tuscaloosa, Ala.
John M. Armstrong, Birmingham, Ala.
H. W. Blair, Sheffield, Ala.
Offa L. Shivers, Marvin, Ala.

ARKANSAS.

Wm. B. Lawrence, Batesville, Ark.
R. G. Jennings, Little Rock, Ark.
Ed. Cross, Little Rock, Ark.
W. H. Hawkins, Texarkana, Ark.
Thomas Edgar Murrell, Little Rock, Ark.
P. Van Patten, Forest City, Ark.
D. C. Ewing, Batesville, Ark.

CALIFORNIA.

Albert L. Gihon, Vallejo, Cal.
John W. Robertson, Crescent City, Cal.

COLORADO.

Peter Brumund, Idaho Springs, Colo.
Mark H. Sears, Leadville, Col.
Arnold Stedman, Denver, Col.

CONNECTICUT.

Edwin A. Hill, East Killingly, Conn.
Walter T. Barber, Waterbury, Conn.
Alfred North, Waterbury, Conn.
Lewis Barnes, Oxford, Conn.
Frank H. Whittemore, New Haven, Conn.

DAKOTA.

E. M. Darrow, Fargo, Dak.
Wm. E. Duncan, Ellendale, Dakota.
J. B. Van Velsor, Yankton, Dakota.
Isaac N. Wear, Fargo, Dak.
Berthold M. J. Conlin, Alexandria, Dak.

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Robert Reyburn, Washington, D. C.
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Norman Bridge, Chicago, Ill.
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James H. Broffet, Paw Paw, Ill.
Josiah Brown, Decatur, Ill.
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E. P. Cook, Mendota, Ill.
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James Cole, Chicago, Ill.
Geo. H. Chapman, Grand Crossing, Ill.
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David S. Fairchild, Ames, Iowa.
T. J. Maxwell, Keokuk, Iowa.
W. D. Campbell, Marshalltown, Iowa.
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G. F. Jenkins, Keokuk, Iowa.
E. M. Gould, Des Moines, Iowa.
R. A. Patchin, Des Moines, Iowa.
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Chas. S. Musser, Aaronsburg, Pa.
H. W. Hitzrat, McKeesport, Pa.
Wm. Dickey Kearns, Pittsburgh, Pa.
Jacob S. Hackney, Uniontown, Penn.
J. M. Gemmill, Jr., Tyrone, Pa.
M. O. Jones, Pittsburgh, Pa.
J. W. Holland, Philadelphia, Pa.
R. P. Heilman, Emporium, Pa.
Alexander M. Pollock, Pittsburgh, Pa.
J. C. Dunn, Pittsburgh, Pa.
E. Allen Wood, Pittsburgh, Pa.
Charles W. Dalles, Philadelphia, Pa.
W. T. Bishop, Harrisburg, Pa.
Wm. B. Atkinson, Philadelphia, Pa.
Wm. M. Brinton, Sharpesburg, Pa.
W. H. Daly, Pittsburgh, Pa.
Wm. Anderson, Indiana, Pa.
Wm. S. Foster, Pittsburgh, Pa.
J. B. Caldwell, New Hamburg, Pa.
Stephen A. Craig, Freedom, Pa.
G. Y. Boal, Baden, Pa.
W. Earnest Good, Philadelphia, Pa.
E. S. Gans, Philadelphia, Pa.
Jno. Wiest, York, Penn.

RHODE ISLAND.

Wm. J. Burge, Pawtucket, R. I.
E. S. F. Arnold, Newport, R. I.

SOUTH CAROLINA.

Thos. Legare, Charleston, S. C.

TENNESSEE.

W. C. Cook, Nashville, Tenn.
Chas. N. Cooper, Cleveland, Tenn.
Wm. Y. Ewing, Nashville, Tenn.
Wm. F. Briggs, Nashville, Tenn.
John H. Callender, Nashville, Tenn.
Giles C. Savage, Nashville, Tenn.
J. B. W. Nowlin, Nashville, Tenn.
Jas. B. Stevens, Nashville, Tenn.
Ed. Duncan, Nashville, Tenn.
Wm. F. Glenn, Nashville, Tenn.
S. T. Armstrong, Memphis, Tenn.
D. J. Roberts, Nashville, Tenn.
Richard Cheatham, Nashville, Tenn.

TEXAS.

W. P. Burts, Ft. Worth, Tex.
O. Eastland, Wichita Falls, Tex.
R. W. Park, Waco, Tex.
M. A. Taylor, Austin, Tex.
Daniel B. Blake, Cusco, Tex.
Wm. A. Adams, Fort Worth, Tex.
Charles H. Sears, Waco, Tex.

UNITED STATES NAVY.

Delevan Bloodgood, U. S. Navy.

VERMONT.

Samuel H. Griswold, Rutland, Vt.
M. R. Crain, Rutland, Vt.

VIRGINIA.

Lawrence Ashton, Falmouth, Va.
J. E. Chancellor, University of Virginia, Va.
Herbert M. Nash, Norfolk, Va.

WEST VIRGINIA.

J. E. Reeves, Wheeling, W. Va.
Chas. M. Frissell, Wheeling, W. Va.

WISCONSIN.

George V. Mears, Fond du Lac, Wis.
Jno. R. McDill, Milwaukee, Wis.
Lucy Eastman Ermine, Royalton, Wis.
John S. Walbridge, Berlin, Wis.
George Leiler, Alma, Wis.
Arthur J. Bergess, Oshkosh, Wis.
Samuel Bell, Beloit, Wis.
F. T. Nye, Beloit, Wis.
Eugene H. Townsend, New Lisbon, Wis.
G. M. Steele, Oshkosh, Wis.
J. Ashley Thompson, Oshkosh, Wis.
Frank S. Wiley, Fond du Lac, Wis.
G. F. Wilter, Grand Rapids, Wis.
Henry Palmer, Janesville, Wis.
Daniel Seymour McArthur, La Crosse, Wis.
Edward Martin McDonald, Doylestown, Wis.
David W. Moore, Waupun, Wis.
Darwin L. Manchester, Waupaca, Wis.
Wm. T. Pinkerton, Eau Claire, Wis.
B. O. Reynolds, Lake Geneva, Wis.
Hugo Phieler, Waukesha, Wis.
Samuel William French, Milwaukee, Wis.
John N. O'Brien, Milwaukee, Wis.
Geo. T. Dawley, Royalton, Wis.
David C. Davies, Columbus, Wis.
Robert W. Earl, Columbus, Wis.
John G. Meachem, Racine, Wis.
T. P. Russell, Oshkosh, Wis.
F. R. Garlock, Racine, Wis.
L. H. Hayman, Boscobel, Wis.
Christian Linde, Oshkosh, Wis.
Albert Hayden, Shullsburg, Wis.
J. C. Hayward, Marshfield, Wis.
J. K. Bartlett, Milwaukee, Wis.
N. Monroe Dodson, Berlin, Wis.
W. Eastman, Mineral Point, Wis.
Wm. T. Galloway, Eau Claire, Wis.
R. H. Bingham, Oshkosh, Wis.
I. W. DeVoe, Wausau, Wis.
Henry L. Day, Eau Claire, Wis.
B. C. Guddan, Oshkosh, Wis.
Wm. L. Tallman, Mineral Point, Wis.
David La Count, Chilton, Wis.
Chas. Alexander, Eau Claire, Wis.
J. F. Corbett, Weyanwega, Wis.
A. H. Guernsey, Amherst, Wis.
J. Cavaney, Milwaukee, Wis.
Edward H. Irwin, Lodi, Wis.
John Phillip, Stern's Point, Wis.
J. W. Hawes, Milwaukee, Wis.
R. M. Hawley, Milwaukee, Wis.
Geo. E. Catlin, Lake Geneva, Wis.
Geo. R. Vincent, Wis.
Geo. Jenkins, Kilbourn City, Wis.
John B. Edwards, Mauston, Wis.

WASHINGTON TERRITORY.

N. F. Essig, Spokane Falls, W. T.

FIRST DAY'S SESSION.

Prayer was offered by Dr. McPherson, pastor of the Second Presbyterian Church of Chicago.

Dr. Smith, in introducing Mayor Roche, said it is many years since the Pottowottamie Indians had encamped on the banks of the Illinois river. Ever since that time a strange medicinal odor had embraced the stream; and, in the evolution of time, the American Medical Association meets in Chicago. We bid you welcome to our city, and, in extending that greeting, I have the pleasure of introducing to you Mayor Roche.

THE MAYOR'S ADDRESS.

Mayor Roche responded as follows:

Mr. President and Gentlemen, Representatives of the Science of Health and Life: In the name of the citizens of Chicago, I welcome you to this city, distinguished for the large number of able and eminent members of the medical profession, and for the exemplication in all the evocations and pursuits of life of the precept, "Whatsoever thy hand findeth to do, do it with thy might." Your mission—to preserve health and remove disease, to prolong life and make it a blessing—is a beneficent and noble one, worthy of all honor. And, though you have not yet succeeded in overcoming death, you have robbed it of half its terrors.

The present generation has seen great progress in medical science; and the medical profession, I think, has kept pace with the other learned professions, if it has not even excelled them, in original investigations and practical discoveries for the benefit of mankind. (Applause).

When in health we laugh at the doctors, and sometimes enjoy a joke at your expense. But in sickness you are our hope and refuge; and, to the worn and wasted patient, just struggling back to life from the gates of death, you are like "the shadow of a great rock in a weary land."

The interchange of ideas and experience, and the discussion of theories and experiments by large bodies of educated men, gathered from different and distant sections of the country, by which the individual thoughts and knowledge of each become the common property of all, is a comparatively modern outgrowth of society and must contribute greatly to the interest and usefulness of the medical profession, being full of promise for the future. (Applause.)

These gatherings for mutual comparison and consultation minimize differences, soften asperities, cultivate the amenities, strengthen the humanities, stimulate inquiry and investigation, extend the horizon of mental and moral vision, enlarge the boundaries of human knowledge, and tend to the unification, improvement and well-being of the whole community.

Gentlemen: I came here as the official representative of a great and hospitable city, whose latch-string is always out, to emphasize the welcome of Chicago to this large, intelligent and representative convocation of a profession whose chief occupation is to *save* life and not *destroy* it, and whose cardinal doctrine is that a sound mind in a sound body is essential to the best performance of the duties of this life, and a great help in fitting men for the life hereafter.

The Chairman of the Committee of Arrangements gave notice that several papers had arrived too late to appear on the programme but would be referred to the appropriate sections.

One by Dr. DeLaskie, of Chicago, on "Infant Feeding" another by Geo. W. Jones, of Danville, Ill., on "Diarrhea in Children," a paper for the surgical section by Dr. Dulles, of Philadelphia, and "The Report of the Committee on Medical and Sanitary on Service on Board Immigrant Passenger Vessels" by Dr. A. N. Bell, of New York.

PRESIDENT'S ADDRESS.

The Chairman then introduced the President, Dr. E. H. Gregory, of St. Louis, who addressed the Association as follows:

Obviously, force and matter "make up" the universe. Force implies antagonism, antagonism perpetuates motion. The living cell is the embodiment of nature. Cell antagonism is life. Multicellular organisms represent a community of unities. A model organism in equillbrium is health. Cell struggle is the gist of modern pathology. Every organ and every element are vulnerable. The strength of resistance in elements and organs, reinforced by the harmony and precision of co-ordination and the vigor of counter agencies, are the momentuous questions.

In seeking for a comprehensive title for my address, I fell upon the two simple words "Cell Antagonism," which form the foundation of my symptomatology and pathology, conjoined with cell changes, the basis of pathological anatomy, embracing at once the universe of life and all the possibilities of life; disease being but one of multitudinous phases of life.

Huxley has likened the body to an army. "Of this army, each cell is a soldier; an organ, a brigade; the central nervous system, headquarters and field telegraph; the alimentary and circulatory system, the commissariat. Losses are made good by recruits born in the camp, and the life of the individual is a campaign, conducted successfully for a number of years, but with certain

defeat in the long run." A model organism assumes that every soldier is a stalwart; every organ a body of stalwarts, with corresponding machines of co-ordination and precision, all alike concerted and vigorous to meet the myriads of counter forces, many of which are too cunning for our ken, but ever ready to take advantage of the least failure of our strength to penetrate our vitals. This force of vital resistance forms the basis of therapeutics, this "vis mediatrix naturæ" will be always the indispensable auxiliary of the physician, without which ally abandonment of the art would be inevitable.

The morophologist distinguishes two classes of elements within the organism. One class represents the fixed cells, cells which occupy the fortifications within the inter-cellular substance; the other class provides for the formation of new tissue, and represents the standing army, sometimes called embryonal substance. Before Cohnheim, our knowledge of the mobile elements—the mobilized army—of the body, was nothing; now most of the literature relating to neoplasm is or has become obsolete. Now coagulable lymph is impossible without the white corpuscles. Organizable fluids have vanished. Through the ingenuity and industry of the great German pathologist a revolution has been worked in medical thought. The study of the mobile elements of the body—the relatively independent elements—promises much. We can almost see daybreak in pathology, a dawn before the coming light which is to illuminate some of the dark places of this most intricate subject. Already leucocytes substitute fibrin. The latter is the product of the former. Wherever there is localized impairment of nutrition, the result of inherent weakness, the leucocytes concentrate, feast on the devitalized structures, and thereby develop into a tissue replacing that which they have consumed. When the surgeon wishes to dispose of an adventitious structure—a cyst, for example—in the connective tissue, he lowers the vitality by over-stimulation—irritation—when he confidently expects the leucocytes to congregate and destroy the cyst, substituting a granulation tissue, which in time becomes scar tissue. Now an organizable fluid as the essential product of inflammation, cells playing a passive part, is a thing of the past. Now cell potency, cell subtlety and cell antagonism constitute the pith and marrow of medical science. There was a period in the history of pathology when all the neoplasia sprang from the tissue cells; now the place and destiny of the tissue cell is fixed. When the tissue elements yet contain some undifferentiated protoplasm, proliferation is possible, otherwise not probable. The mobile cells constitute the mobilized army; the great co-ordinating centers assemble them at any moment, ready to antagonize hurtful agencies. Irritation always provokes a concentration of the white cells. Irrigation means injury. It may be simple or specific. Either way it is a signal for moving the army in solid phalanx to confront noxious agencies, and the combat is hotly contested till victory or discomfiture ensues.

Inflammation, the keystone of medical science, the standard process by which all other pathological conditions are measured, is only to be explained on the theory of cell antagonism; it is practically a struggle between irritant bodies and white blood corpuscles. Foreign bodies are invariably invaded by leucocytes, their swarming having for its object to repel or render inert the offending cause. Observations directed to the white cell have been followed by an inspiring increase in our knowledge of the vital properties of cells in general. The quality of spontaneous motion once accepted, the idea that the cell played a passive part quickly disappeared, and in its stead came the conception of autonomy, the fact that the cell specialized food for its own purposes, actually breaking up compounds and adapting the products to its own growth and development, strikingly illustrated by an independent form of government—for example, the government of the United States. A great statesman has said ours is a "government of the people, by the people and for the people." Cells live of themselves, by themselves and for the whole body. The cells make the central government. The coördinate machinery is formed by the cells, and the cells are in their turn centralized and harmonized by this power. The tissue elements are in direct continuity with the centre; but it is otherwise with the floating, wandering cells; yet their behavior gives evidence of their concern for the well-being of the entire organism. Again, the free cells take into their substance the most refractory substances, digesting solid bodies; sponges and green plants yielding to their digestive and assimilative processes. Observations the most patient and trustworthy in the lower vegetables have demonstrated the fact that bacteria have been seen in the substance of amœboid cells; others have been seen pursuing bacteria, ultimately capturing and destroying them. Throughout the whole animal kingdom mesoderm cells use their ingestive power for destroying micro-organisms. Further, this property seems to be utilized for the removal of larv organs. Colorless corpuscles present the same appearance and have similar properties and the same mode of origin in the entire range of living beings. When the irritant or harmful agency is

particularly obdurate, white cells exhibit a very strange habit of throwing out processes which unite with similar processes from neighboring cells, until a considerable mass of protoplasm is formed by their confluence, constituting a giant cell. Thus an army of giants may be improvised on occasions of extreme emergency; for example, when the tail and gills of the tadpole are to be swept off, this powerful division is ready for the Herculean task.

Apply these facts to the inflammatory process in mammals. Suppose a foreign body lodged; that moment leucocytes leave the blood vessels and congregate for the purpose of opposing the intruder. In such diseases as tubercle, leprosy, etc., the giant cells appear, and in their center—their substance—the specific bacillus is found. Koch found the bacillus of anthrasis and the bacillus of septacæmia in the mouse, enclosed by white blood calls. We say, with these obvations before us, inflammation exhibits a new aspect; cells conquering cells as a process of normal physiology; simply the free cells, the white cells resisting injury, there being a provision not only for concentration, but for increasing their number and augmenting their strength, corresponding to the emergency. A recent authority, Mr. Sutton, says: "If we summarize the story of inflammation as we read it zoologically, it should be likened to a battle.. The leucocytes are the defending army; their roads and lines of communication the blood-vessels. Every composite organism maintains a certain proportion of leucocytes as representing its standing army. When the body is invaded by bacilli, bacteria, micrococci, chemical or other irritants, information of the agression is telegraphed by means of the vaso-motor nerves, and the leucocytes rush to the attack, reinforcements and recruits are quickly found to increase the standing army, sometimes twenty, thirty or forty times the normal standard. In the conflict cells die and often are eaten by their companions; frequently the slaughter is so great the tissues become burdened by the dead bodies of soldiers in the form of pus, the activity of the cells being testified by the fact the protoplasm often contains bacilli, etc., in various stages of destruction. The dead cells, like the corpses of soldiers that fall in battle, later become hurtful to the organism they in their lifetime were anxious to protect from harm, for they are fertile sources of septicæmia and pyæmia, the pestilence and scourge so much dreaded by operative surgeons. The analogy may seem to some a little romantic, but it appears to be warranted by the facts.

Just here the question obtrudes, Is the action which follows mechanical, chemical and thermal injuries, and the action caused by vital injuries alike inflammatory processes? In the one, that resulting from physical causes, the nutrient processes are not disturbed, simply increased. In the other, that resulting from vital causes, the cell processes are disturbed, thwarted and vitiated. It seems unfortunate that the action which succeeds to traumatism should be confounded with that which succeeds to specific germs. The nutrient changes come into vigorous play after an ordinary injury, altered in one particular only, viz: the presence of a palpable neoplasm, which substitutes the structures doomed by the injury. The addition of new material is invisible in ordinary nutrition, growth and maintenance for example, the substitution being atomic. When a structure is destroyed bodily, as in traumatism, the substitution is corpuscular, therefor palpable. It is certainly perplexing to assume, as does Sir James Paget, that a visible neoplasm is produced by inflammation, but its development is impossible till after the withdrawal of the inflammation. To get rid of confusion, though we do not emerge from error, is to make a step toward truth. The full effect of traumatism is immedtate and complete; it cannot increase itself, therefor its effects are always limited and within the possibility of estimation, for the reason that cause and effects are in precise correspondence; besides antiseptics do not influence the changes in any particular. On the other hand, the most extensive and severe injuries of vascular parts, involving bone, joints, the great cavities, etc., is possible without producing inflammation, provided antiseptic precautions be taken. When such complication ensues, it is a wound accident, not a wound incident, and the result of infection. There is no disturbing factor in the process incident to repair; no waste products. If pus is found, it is the result of the intrusion of some noxious agency, some contagion, some pestilence; in short, a specific cause.

If it be agreed to call the action inseparable from ordinary injury physiological repair, the term inflammation is limited to the series of events referable to a vital agency, which until very recently has eluded detection. A specific agency determines a class of diseases as distinctive and definite as the living creatures studied in natural history. Cell antagonism after physfcal injury is simply a substitution, through the development of mobile cells, of the tissue which has been spoiled. The fixed elements multiply and develop in the expansion and perfection of the several structures of which they are components, but take no active part in the process of repair after injury. After the perfection of the body, the factors favoring proliferation and those

which inhabit it must be in a state of balance. In functional hypertrophy, the balance is toward the side of proliferation. On the other hand, in non-functional hypertrophy, the problem is not so simple; the balance is disturbed toward proliferation by some mysterious agency. How strikingly different when the cell antagonism is with any vital injury; here cell mysteries clash. The bacteriæ enter into conflict with mobile and fixed cells, but it is not possible to know how the conflict is carried on. Certainly a series of disturbances ensue in the normal metabolism of the elements. The functional, formative and nutritive activities, which are the expressions of cell life, must be altered; their vigor, perhaps, lessened, their susceptibilities modified. Exceptionally their life is enfeebled or extinguished. The issue of a bacterial affection is either the death of the patient or the destruction and elimination of the bacteriæ. It follows that this disturbance of cellular activities is always at the bottom of morbid symptomatology; and observations have shown that disease of this kind, successfully withstood, leaves the element in a peculiar unsusceptible condition, insuring an immunity, almost or quite complete, against a fresh invasion of the same or kindred bacteriæ. This modified susceptibility was practically understood by Jenner. Pasteur, resuming and systematizing the great Englishman's work, successfully modified cell forces, rendering them harmless by cultivation, and sending them on the important mission of destroying the natural proneness to the deadly assaults of the uncultured cells. Whilst we may despair of ever understanding the essential nature of vitality, the study of the causes which regulate life, and their subordination to conditions which may be determined, has led the way to the grandest achievements of recent times. Pasteur and Lister are the great apostles of modern practical thought.

Huxley has suggested that it may be possible to introduce into the economy a molecular mechanism which, like a cunningly contrived torpedo, shall find its way to some particular group of cells and cause an explosion among them, leaving the rest untouched. Pasteur's cell mechanisms exceed the conception of the great scientist, for they cunningly change the vital qualities of the elements without desroying them. May we not look forward for some great advance in therapeutics in the direction to which Pasteur's genius points, by the study of cell antagonism? Certainly vital subtleties may best cope with vital subtleties. Study of the conditions in which infective agents arise, by ascertaining the circumstances which limit or facilitate their diffusion, has already raised surgery to a proud preeminence. With therapeutics it is otherwise, as it is doubtful whether the new facts have yielded the slightest increase of power against the diseases of mankind. Let us not despair. Knowledge must come first, then wisdom brings its practical application. The study of cell possibilities, their readiness and energy in rendering inert noxious agencies, whether introduced from without or arising from within, exhibiting an antagonism at once potent and direct, rather tends to dampen one's therapeutic enthusism. The thoughtful student sees nothing abnormal in disease. To be sure there is a physiological emergency, but there is no disorder in the cell processes; rather the perfection of order. If a physical or chemical cause intensifies the cell changes, in other words, determines the physiological emergency—every cell movement is direct, purposive and efficient, ending only when the intruder is ejected, encysted or accommodated. On the other hand, if the offense be a vital one, a living cell, a microphite, the spectacle is that of one living creature preying upon another, the declaration of the first law of nature, not an enemy, but an intruder struggling for self preservation, simply a physiological fight for life. Can we hope an ideal tonic for cell antagonism, such as would innervate the cells on one side, and enervate them on the other, the "old chestnut," "Prevention is better than cure," is not yet worm eaten.

Cell antagonism implies a struggle. The duration of the struggle is determined by the quality of the irritant and the strength and resources of the antagonists. Acute inflammation is a sharp and decisive action, chronic inflammation is slow and indefinite. There are two striking, important chronic conditions, viz: The interstitial inflammation and the infective granulomata, interesting alike to the physician and the surgeon; both are alike disastrous, the one, interstitial inflammation, distroying by cicatrical contraction; the other, infective granulomato, by stopping at the fibro-blast stage, retrogression replacing development. The quality of infection and the failure to develop beyond the stage of granulative tissue is the exact condition, as illustrated by tuberculosis, syphilis, lupus, etc., in contrast with which is fibrosis of the liver, cirrhosis of the kidney, Bright's disease, fibrosis of the brain, sclerosis, interstitial inflammation, destroying the tissue clements by strangulation and infective granulomata by contamination.

Again, the two varieties of inflammation referred to declare that the quality of the irritant determines the effect of the inflamation, the interstitial variety being caused by physical agency,

and the infective by a vital one. Cells antagonize physical causes without losing any of their vital qualities. Not so when cells antagonize vital causes. When cells are pitted against cells they may be despoiled of their highest quality, as in the infection granulomata they have parted with formative activity. In short, the knowledge that pertains to the presence of a vital irritant epitomizes all that has been taught of infective disorders. The symptomatology and pathology of this class of diseases is but the life history, the play of cell activities, metabolisms and catalysis of antagonizing organisms, as likewise to the knowledge pertaining to the presence of a foreign body or physical irritant is the knowledge, in brief, of fibrinoses in general of that entire class of disorders known as interstitional inflammations. A persistent irritant—injury—with its attendant concentration of leucocytes, their inevitable development and ultimate transformation, the history of the capsulation of a foreign body, whether it be animate or inanimate is the history of cirrhosis of the liber, fibrosis of the lung, morbus Brightii, atrophy of the heart, atrophy of voluntary muscles in general, sclerosis of the brain and bones; in short, diffuse capsulation. Some disseminated irritant, say alcohol, determines a sclerosis of the liver, and how? Every particle of alcohol being a foreign particle, having its capsule, it follows that capsulation is as uniformly distributed as the cause. An artisan inhales fine particles of steel or other foreign material, and fibrinosis of the lung is the consequence. The irritants of gout and rheumatism are lodged in the kidney, the interstitial tissue of the organ increases, and in the end strangulates the tubules and malpighian bodies, resulting in shrinking and total disorganization of the organ, constituting Bright's disease. Like changes occur in the heart co-incident with the development of the interstitial fibrous tissue, as atrophy of the muscular substance, substituting a fibrous induration for its normal structure. A similar change in the voluntary muscles occurs in the curious disease known as the pseudo-hypertrophic paralysis, chiefly afflicting children. The connective tissue between the muscular fibres increases so much that the muscles affected may exceed their normal size three times. Later, however, the new tissue shrinks, and the contractile material of the muscles is spoiled. The condition of sclerosis in bones corresponds to cirrhosis of the liver, and Bright's disease of the kidney. In the nerve centers of the interstitial tissue, neuralgia takes on the same chronic over-growth, strangling the nerve strands and cells, giving rise to the most singular and complicated nervous phenomena. The changes thus induced are recognized by the general term sclerosis. If it involves the fascicules of Burdack and the column of Goll, locomotor ataxia results, if the medulla, bulboo paralysis, etc.

We have purposely avoided reference to diathesis, as also to the precise neurological relationship of cells, not because we deny their influence, but because too little is definitely known. On the contrary, the behavior of cells relatively to irritants is well understood. The presence of a foreign body is at once and directly resisted by the leucocytes, a zone of inflammation, its destruction, transportation or capsulation, even parasites which resist the death-dealing assaults of the leucocytes are at last imprisoned in cases of fibrous tissue.

There yet remains for our consideration a mysterious possibility relating to cell life of great practical moment, viz.: that of entering upon a life of independence, separating from the central nervous system "headquarters," disregarding the "field telegraph," oblivious to the morning "drumbeat," and wholly ignoring the restraining and directing influence of environing structures. We have learned that however much irritation may affect the vital qualities of cells, their fidelity is always preserved, there being no sign of disaffection, the army ever intact, the fealty of the soldiers supreme. Physical causes—traumatism—may crush or impair the tissues, but the cells come to the rescue with all vigor and directness. The prolonged presence of bacteriæ may impair the forces of the cells, enfeeble and extinguish them, but as long as life lasts their efforts are in harmony with the purposes of the organism. Thus it appears that alienation is not possible through the agency of irritation, however intensified, modified or prolonged.

The question constantly obtrudes: Is alienation possible to a mature element, to an element that has assimilated itself physiologically as well as anatomically, with the surrounding tissues; taking part in its functions; concurring and cooperating in all the processes of the economy? This question seems to have confronted Cohnheim when his ingenuity suggested the embryonal hypothesis, viz: that the tumor germ was congenital; that there were in the mature body embryonal elements and tissues not utilized in the elaboration of the normal structures; latent, embryonal rudiments; small embryonal cells so diminutive as to elude observation, inactive perhaps, till some exciting cause awakens activity. Is not an embryonic element in a mature organism an alien? Is it not already an independent element? Are not the patches in the skin, pigmented moles, islands of cartilage in mature bone, congenital angloma, etc., independent structures,

already tumor germs, congenital rudiments of tumors? Accept the hypothesis of the great German pathologist, and the problem of tumor etiology is almost solved; it remains only to find the exciting cause; the predisposition is inherited; irritation, simple or otherwise, may be nearly allied to the awakening impulse. The difficulty is to reconcile cell antagonism with the proposition this doctrine includes; the idea that all discordant bodies are treated as intruders, either ingested, transported or covered up. We can conceive the possibility of the existence of an inoffensive tissue or element, one that simply draws its nourishment from adjacent tissue, without any serious disturbance of their normal metabolism. We would gladly adopt the theory of Cohnheim, which ascribes the origin of tumor neoplasms to persistent germinal rudiment Certainly it has much to recommend it. Countless latent embryonal structures, relatively independent, are tolerated by the organism, remaining inactive till favored by some concurrent event, the nature of which is incomprehensible, when they may grow according to their bent. Is it not quite as possible there may be similar, relatively independent elements, ready when stimulated, to multiply independently? Congenital angloma often grow without definite limit; pigmented moles; black, slightly-raised patches in the skin, with which all are familiar, are composed of tissue exactly resembling sarcoma, always suspicious because of their disposition to proliferate independently. It is most difficult to believe in the infidelity of covenant cells, of sundering the compact which unifies the organism. Emancipation seems almost out of the question. We must not only believe that dependent benignant elements become the elements of a parasite—a parasite so vigorous, corrupt and wicked as to destroy its source.

The painful part of the retrospect of a year is that which recalls those who have been taken from us. The past year has had a very special grief for our association in the death of one of our ex-Presidents, Dr. William Owen Baldwin, who died at his residence, and the place of his birth, Montgomery, Alabama, May 30, 1886, He was among the early members of the American Medical Association, and its President in 1869, residing at New Orleans. His address on that occasion will be remembered as abounding in Christian and patriotic sentiments, eminently befitting the good and great physician. The Committee charged with the organization of the Ninth International Medical Congress, which meets at Washington City this year had named him as one of its Vice-Presidents. Dr. Baldwin was remarkable for his culture, the eloquence of his speech and the beauty of his diction, and will be remembered as an imposing figure in the history of this great Association.

I need scarcely remind you, gentlemen, that we shall have with us, after a few weeks, the medical men of all nations. Soon we shall extend the hand of fellowship to those with whom we have heretofore been united in interest and sympathy in the cause of science. We know that everything is made ready and that success is assured. Again, you will join me, I know, in the declaration that a hearty American welcome awaits their advent, and that the Ninth Meeting of the Great Congress will be memorable in the history of its organization.

After considerable discussion it was decided that the following report should be made to the Association as whole: The Report of the Committee on Medical and Sanitary Service on Board Immigrant Passenger Vessels." This report would have been submitted last year but for a delay in mail delivery.

After considerable correspondence with the House Committee on Commerce the Committee found that the "Act to Regulate the Carriage of Passengers by Sea" of July 22, 1882, was supposed to provide against the evils complained of. But the Committee felt certain amendments to be necessary, and addressed a letter January 21, 1886, to Hon. John H. Reagan, Chairman of the House Committee on Commerce, calling his attention to the ways in which the obligations of the law are evaded.

The law reads "whereon emigrant passengers, or passengers other than cabin passengers," and first cabin and saloon passengers are construed as being exempt from legal obligation, and the Committee also calls attention to the incompetency and disgraceful status of the medical officers and recommends these amendments to meet these evasions.

1st. Wherever the words "cabin passengers" occur, they should be made to read first cabin and saloon passengers.

2nd. In section No. 5 requiring that "Every steamship or other vessel carrying emigrant paspenger, or passengers other than cabin passengers exceeding fifty in member, shall carry a duly qualified and competent surgeon or medical practitioner," after "practitioner" to add that if the number of such passengers and crew is over six hundred, a junior or assistant surgeon or medical practitioner be added; the service of such practitioners to be given promptly, without fee, in every case of sickness, and whether there be one or two they be required to perform the duties of sanitary officer, reporting to the Master of the vessel with all suggestions needful.

They should be provided with a competent apothecary or steward, and it shall be their duty to report in writing, under oath, to the officer of the port at which they arrive a detailed account of all sickness and every case of insanity or imbecility noticed. The Committee did not feel called upon to touch on the failure of that portion of the bill intended to provide against the immigration of convicts, etc.

The Session then adjourned.

THE SECTION ON SURGERY AND ANATOMY was very largely attended. In the absence of the Chairman, the Secretary, Dr. Pollock, presided, Dr. Walker acting as Secretary pro tem.

The paper of Dr. Summers on Gerebral Abscess' was passed and referred to the committee for publication. Dr. S. C. Armstrong read this paper on "Trephining in a Case of Intermeningeal Hæmatoma with Hemiplegia."

Dr. Walker, in discussing the paper, reported the case of a man brought to the hospital by the police, who supposed him to be suffering from intoxication. His left arm and leg were paralyzed. After remaining in this condition for five days, a conical incision was made over the right fissure of Kolando, and two buttons of bone and four ounces of coadgulated blood were removed. A rapid recovery followed, and he left the hospital cured at the end of three weeks.

"SCIRRHUS OF THE MAMMÆ."

Dr. W. C. Wile, of Philadelphia, read an exhaustive paper on the above subject. His treatise is so excellent that we give an almost literal abstract of it. He said:

Which of you have never been approached by a timid, shrinking woman, who, bearing her breast as though making ready for the sacrificial altar, stands awaiting her doom which shall hang upon your verdict? Which of you, think you, know of the agony this poor being has already passed through? Who of you can guess the anguish and fear that have finally driven her to seek a confirmation for her one absorbing thought—the phantom that stays by her and is her inseparable companion by day and by night? Have you ever looked into her eyes when she asks, "Doctor, is it a cancer?" They tell us the eye is the mirror of the soul. Oh! what unutterable depths of anguish do they not depict, when finally, after an examination, we are reluctantly forced to admit the confirmation of her worst fears. How they shine with gratitude, thanksgiving, and joy if we may positively assure her the grounds are unfounded. In my whole medical career I have never found a disease that holds such a frightfully depressing sway over a patient's thoughts—one that is so infested with terrors for them, that, apart from all pain, has the power of so ruining a bright, happy, lovable, womanly nature as scirrhus of the mammæ. I have known a woman with cancer of the breast go about her daily vocation, attending to duties, social and wifely, that her position demanded, suffering the agony of the damned, and refusing all treatment, rather than give to her husband and children the knowledge that she suffered from a mammary tumor. Every atom, then, that we may bring to bear testimony to a substantiation of older modes of treatment, any statement we can truly make to fortify good results, should be freely given, so that it be in our power to offer these poor sufferers the effects and benefits of what interference we shall practice.

I have nothing new to offer you in my paper; but I wish to reiterate a point or two that previous writers have already offered, and which, in my own experience, now stand strongly approved. It is not my purpose to enter into the etiology, pathology, or diagnosis of scirrhus, but simply content myself by saying the first is always doubtful, the second well known, and the latter never sure until a section is laid under the microscope. Believing this, then, so firmly, I may say, in the twenty-five cases I present to you, I have had sections of the removed tumors made and a diagnosis of their character given by some able microscopist. In justice to myself and many others I know, I may say, I have removed tumors for scirrhus cancer that subsequent investigations have not verified, and again tumors that were diagnosticated as benign have been found to be malignant growths. This is, of course, not of frequent occurrence; but the fact that it does happen, and to the best of us, is what led me to say, a moment ago, that there is always a doubt as to the absolute truth of the diagnosis until verified by microscopical investigation.

With respect to treatment there is now, as there was many centuries ago, diversity of opinion as to what interference shall be practised; in my own humble opinion and that of the vast majority of surgeons there is but one mode of procedure. It consists of amputation, and the earlier the amputation the more likely are the beneficial effects to be enhanced. The fact that a scirrhous cancer will at very rare intervals remain in an adolescent state is no proof or, rather, evidence against the justice of early operative interference. When the patient is advised to wait for developments, we may justly say it is done to cover the ignorance of the attendant, or evidently the result of a timidity which he cannot overcome, and results in an amount of un-

necessary distress which might well be avoided. This every unbiased practitioner will verify, for our results cannot be measured by single instances or by the reports of a few fortunate operators, but must be massed and the inferences drawn from the aggregate cases. Prof. S. W. Gross found the average duration of life in cancer of the breast, if allowed to pursue its own course, to be twenty-seven months. Where extirpation was practised the average was raised to thirty-nine months, a clear gain of one year. With regard to an ultimate result an analysis of 542 cases by the same observer showed that fifty-seven survived over three years without any recurrence, and died of an intercurrent malady, and fifty-three were alive at the date of last reports. The average duration of life after the operation was six years and five months, while only 1.5 per cent. of the cases allowed to run a natural course survived six years. Of the cures 31.57 per cent. were free from the disease at the end of six years. The average duration of the disease in these cases had been seventeen and a half months—as you can see, a period too late to be in its most favorable aspect.

The age at which carcinoma of the mammæ most commonly occurs is about between the thirty-fifth and fiftieth years of age. The youngest cases reported of which I have any knowledge are those of Mr. Lyford and Mr. B. B. Cooper. Lyford's case was a girl of eight years; Mr. Cooper's was thirteen years old. Holmes speaks of a preparation, in St. Bartholomew's Hospital, which was removed from a maiden of sixteen. Prof. S. W. Gross' youngest case was twenty-seven years old. Holmes reports 458 cases in which the disease occurred at the following ages:

AGE.		AGE.	
From 20 to 30	19	From 60 to 70	34
" 30 to 40	100	" 70 to 80	6
" 40 to 50	193	" 80 to 90	7
" 60 to 60	97	" 90 to 100	2

Thomas Bryant reports the ages of 400 cases as follows:

AGE.		AGE.	
Under 30 years	17	From 50 to 60	101
From 30 to 40	108	" 60 to 70	29
" 40 to 50	144	Over 70 years	1

Of the twenty-five cases which I report to-day the age was as follows:

AGE.		AGE.	
Under 30 years,	1	Between 50 and 60	5
Between 30 and 40	6	" 60 and 70	1
" 40 and 50	11	Over 0 years	1 7

Death as a result of the operation is rare, and occurs only from shock when the debilitation of the disease has assumed grave proportions. In the case of death which I report the operation was performed against my better judgment, for I allowed my refusal to be overruled by the persuasions and entreaties of the patient and her friends. I think, as a general thing, it is a fair statement to say: never operate on a patient who has passed her seventieth year, and never operate when atheromatous degeneration exists; they always do badly. Just one century ago Benjamin Bell wrote: ". . . . Even in very advanced stages of cancer it is right to amputate, provided the parts affected can be completely removed. When, indeed, this cannot be effected, from the cancerous parts lying too deep, or from their being immediately connected with organs essentially necessary to life, by which amputation of the one cannot be performed without considerable injury being done to the other; in such circumstancss—as the operation would not be of any real utility—it should not be recommended: for, as all the diseased parts could not with propriety be removed, and as the cancerous virus is of a very assimilating nature, it would answer no beneficial purpose to amputate only a portion of them. But in every instance when the parts affected can be safely separated from the sound, as nothing but their removal can afford any chance of safety, we must again say that no hesitation should occur in advising the operation." So wrote this great surgeon a century ago, and to-day I have, after all my studies, with our greatly increased facilities for pathological research, and the improvements in operative procedure, nothing to add, nothing to detract from the great truth he has embodied in the foregoing words.

Another point to which I wish to strongly draw your attention is the unnecessary slaughter to which the skin is subjected in these amputations. Where the skin is not involved save it, and a grand rule is, save all of this tissue that can possibly be saved. The less skin removed, the more readily does the wound heal. The smaller the cicatrix, the less likelihood for a residive in the original site. I find Bell remarked this, and speaks of it in the following terms: "But when any portion of the skin is taken away, ... the remaining cicatrix is necessarily of the same size; a tenderness is left in the site of the disease, which I am convinced has often some influence in giving rise to a return of it." Later on, he says he never had cause to rue this saving, which he practiced for twenty years before writing the foregoing. I followed the same practice in all my operations, and my results are as favorable, I am sure, as those who practise the wholesale sacrifice of the integument. Thomas, of New York, not long ago

recommended a method of operation in which the tumor is enucleated without the sacrifice of any skin. Of course this is only applicable to those cases in which the skin is not already involved.

In operating upon the mammæ for scirrhus the same broad principles of surgery must be applied that are applicable to surgical interference upon any other part of the human economy. It will be of inestimable value to an operator when he has finally mastered the maxim that the principle never changes whatever the site of the disease may be. During the last few years I practised antisepsis in operating upon these cases, as I did in all my other surgical work, and I am sure the healing of the wound was so greatly accelerated that I shall never attempt the same operation without taking like precautions, and one may truly here say the end justifies the means.

The following table is an accurate account of the twenty-five successive cases which I present you:

	DATE OF OPERATION.	NAME.	AGE.	SITE.	PERIOD OF IMMUNITY.	PERIOD OF IMMUNITY.
1	Jan. 12th, 1872.	Mrs. A.	39	R.	Healed nicely. No return.	No return.
2	March 3d, 1873.	Mrs. D.	56	L.	Healed nicely; recurred again in 1877. Died in 1882.	Four years.
3	Dec., 1873.	Mrs. A.	47	L.	Healed slowly; no return for five years. Lost sight of.	———
4	Jan. 19th, 1874.	Miss P. A.	44	L.	Healed nicely; perfect health for nine months; then returned and died inside of year. Died in 1875.	Nine months.
5	April 3d, 1874.	Miss May S.	39	L.	Very large tumor. Healed nicely. No return.	No return.
6	April 17th, 1874.	Miss Jane T.	43	L.	Very bad case. Insist of operation; large ulcerating surface; very weak. Recurrence in wound and died in six weeks.	None.
7	Nov. 13th, 1874.	Miss L.	47	L.	No recurrence.	No return.
8	Jan. 13th, 1875.	Mrs. T.	52		First operation healed nicely; returned in 1876; operated again; healed again, and died early part of 1877.	1 year and operation. 1 year and death.
9	June 10th, 1875.	Miss May S.	36	R.	Healed perfectly; no return for two years; left then affected. Removed it December 3d, same year. Seemed to have recovered entirely, but recurred in both breasts and died June 13th, 1877.	2 years and operation. 3 years and death.
10	Jan. 12th, 1876.	Miss S.	39	L.	Recovered and no return.	No return.
11	Sept. 22d, 1876.	Mrs. P.	48	R.	No return.	No return.
12	Jan. 3d, 1877.	Mrs. T.	42	R.	No return.	No return.
13	April 7th, 1878.	Mrs. T.	69	R.	No return.	No return.
14	April 10th, 1879.	Mrs. D.	45	R.	No return.	No return.
15	Dec. 11th, 1880.	Mrs. O.	51	L.	Return and death in two years.	Death in two years.
16	Feb. 17th, 1881.	Miss L.	73	Both	Died in three days of shock.	———
17	Feb. 27th, 1881.	Mrs. T.	44	L.	No return.	No return.
18	June 18th, 1882.	Miss A.	49	L.	No return.	No return.
19	Aug. 7th, 1882.	Mrs. P.	51	L.	No return.	No return.
20	May 13th, 1883.	Mrs. K.	53	L.	No return.	No return.
21	Oct. 29th, 1883.	Miss D.	31	L.	No return.	No return.
22	July 5th, 1884.	Mrs. F.	27	L.	No return.	No return.
23	Oct. 3d, 1884.	Miss T.	37	R.	Died within one year.	———
24	Feb. 9th, 1885.	Miss L.	42	Both.	Second operation; first by some one else. Died within one year.	———
25	Feb. 23d, 1886.	Mrs. T.	44	L.	No return.	No return.

In cases Nos. 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 24, 25, there was no particular incident that calls for mention here.

In the sixth case I had little hope of ultimate recovery at time of operation, the tumor was a very large one, and presented a great ulcerating surface; it had been of three years' standing. The woman was greatly emaciated through her suffering and the attending cachexia generally. In removing it I had to extirpate a large part of the greater pectoral muscle. I then found that the minor was also involved, and that there were attachments to the ribs. I cut this away, and chiseled the involvement of the ribs away, a

large part of the axellary glands where removed, but in spite of all, as soon as granulation set in it was evident there was a return of the disease, and the woman died in six weeks from the date of the operation.

In case No. 9 it was somewhat different. The first tumor occurred in the right breast in May, 1874. I operated in June, 1875, a few days after I first saw her. The wound healed perfectly, and for two years there was no symptom of any recurrence, and I had begun to hope it might be a cure, when in August, 1877. she returned to me with a nodule the size of a walnut in the left breast. I advised a second operation, to which she submitted. She once more made a good recovery, and there was nothing to indicate a recidive until early in 1880, when a tumor again appeared at the site of the original wound in the right breast, quickly followed by one in the left breast, and she finally succumbed in 1883, eight years after the original operation.

Case No. 16 is that of the old woman, previously referred to. The operation was done as quickly as practicable to avoid unnecessary shock; a continuous cut being employed in the removal of each tumor, ligating all vessels after the removal. In this way less blood is lost, and the shock is not so great as when one continually stops to apply a ligature at each bleeding point. Nevertheless she never rallied and died of shock in three days.

In case No. 22 the early age of the occurrence of the tumor is worthy of note. The patient was just a little past twenty-six years of age when I first saw her. Some eight or ten months later I advised enucleation, although I doubted scirrhus at the time. She was then operated upon, and the specimen sent to my friend, Dr. Dellafield, of New York, for examination; he pronounced it a scirrhus. This was the first case in which I practiced antisepsis. The wound healed by first intention and there has been no return.

In doing these operations asceptically the most scrupulous care must be practised. The part is first scrubbed with soap and water, then washed with ether, and then a stream of 1 to 1000 of bichloride of mercury allowed to play over it. It is then swathed in towels, which have been previously boiled and placed in the same solution for forty-eight hours; all the instruments have been asceptically rendered by prolonged boiling and immersion in strong carbolized solutions. The sponges have been prepared, and the catgut treated in chromic acid and bichloride solution, or oil of juniper and the latter. The operator and assistants practised the same scrupulous care with regard to themselves; scrubbing the hands and washing them in the mercurial solution. Iodoform is freely used in the wound, and the final dressings consist of half a dozen or more layers of gauze rendered asceptic. After the dressings are applied, and the temperature remains about the normal point, they are not touched for two weeks, when upon removal it will be found that the wound has united by first intention.

The following papers were also read and discussed:

"Cerebral Abscess." By Thos. O. Summers, Jacksonville, Fla.

"Trephining in a Case of Intermeningeal Hæmatoma with Hemiplegia." By S. S. Armstrong, Memphis, Tenn.

"Skin Grafting." By J. D. Griffith, Kansas City, Mo.

"Complete Loss of Scalp, including the greater portion of the Eyelids and one Ear. Treatment by Skin Grafts." By F. C. Shaefer, Chicago.

"Retroflexed Splints for Fractures of the Forearm." By W. D. Kearns, Pittsburgh, Pa.

"A Deformity and Disability following a Form of Injury to Ankle Joint." By E. A. Wood, Pittsburgh, Pa.

"Treatment of four cases of Acute Traumatic Tetanus," By R. C. McCord, Lebanon, Ky.

"Report of twelve cases of Alexander's Operation." By J. H. Kellogg, Battle Creek, Mich.

SECTION ON MEDICAL JURISPRUDENCE.

Dr. Frank S. Billings, Director of the Patho-Biological Experiment Station of the State University of Nebraska, read a paper on "The Necessity of a Uniform Standard of Education in all American Medical Schools."

The author is directly opposed to the existing system of medical education, and finds nothing worthy of praise as it now is. The professional results that have been creditable to American medicine have been due more to influence outside the schools than to the schools themselves. The medical school system is rotten from its foundation. Its existence and purpose conflict with the true interests of the State.

It is a case of great advantages derived by the few at the expense of the many. It is more an advertising system than anything else. Doctors are made, physicians are born; doctors treat themselves to fill their own pockets, and physicians treat to save suffering humanity. The physician is the true follower of the principle that public health is public wealth; the doctor is the Iscariot of the medical profession.

The speaker believes that the greatest curse to American medicine is the "Alma Mater" nuisance, and students are used for mere business purposes, not only while students, but after having graduated. He considers this nuisance one of the main features, giving rise to dissensions among medical experts in the courts of law. The aim of the majority of American medical schools is to make doctors simply because it pays, and because those made think it will pay to become such.

In the opinion of the author not one of the American medical schools has been founded in the interest of the public alone.

The great variation in the course of instruction in the different medical schools is compared, the standard being 56 at the last annual report. The actual number of days' attendance upon lectures required varies between 18 and 621 days; this is after deducting Sundays and holidays. In Missouri, out of eight (8) regular schools, the course varies from 224 to 381 days. In New York, from 190 to 621 days.

The remedies proposed by the author for this condition of affairs are found in the following conclusions, which terminate his paper:

First—No uniformity of action can be had in forensic action until some method is devised bringing the regular medical schools into line and inaugurating one system of instruction and one system of graduation in them all.

Second—Forensic medicine must become a specialty for both medical and legal experts, both of which must take a full course in medicine and law.

Third—The desired ends can be best obtained by inaugurating a course for the medical schools in the different parts of the country by the general government, which shall support them; one system of education and one system of graduation dominating these schools. There should also be a national school of comparative medicine to be the chief point of original research and medical education in the land.

Fourth—The inauguration of a course of instruction in pathological anatomy and general pathology in all schools.

Fifth—The condemnation by the American Medical Association of all medical schools not requiring a three years' course of study of nine months each, and the abolishing of one year's study with a regular graduate.

The following papers were also read and discussed in this section:

"Medical Jurisprudence in its relation to Undue Influences as Affecting Wills and Contracts." By Judge Amos G. Hull, New York.

"The Suppression of the Illegal Practice of Medicine." By Joseph F. Edwards, Philadelphia, Pa.

"State Supervision of the Insane" and "Medico-Legal Relations of Epilepsy." By James G. Kiernan, Chicago, Ill.

"Mental Responsibility in Inebriety." By T. D. Crothers, Hartford, Ct.

"Syphilis and Marriage." By J. V. Shoemaker, Philadelphia, Pa.

OBSTETRICS AND DISEASES OF WOMEN.

Dr. Morris in his paper on "Placenta Prævia" said that three fatal cases of placenta prævia that had recently come to his notice, two of which he had seen in consultation, convinced him that some more positive and radical views of treatment should be adopted in this grave trouble than those suggested in the text books of the day.

He had not, however, prepared a lengthy paper on the subject, but in lieu thereof, had formulated some propositions which he believed would serve as incentives to discussion, and thus call forth the views and experience of the members of the Section.

Dr. Morris laid down the following propositions:

1. No expectant plan is justifiable in cases of placenta prævia. The uterus must be emptied as soon as possible after the discovery of the trouble, no matter what the stage of pregnancy may be. A halting, hesitating practice means danger both to mother and child.

2. That the life of the child must not be considered in the treatment of the case.

3. That the manner of emptying the uterus must be left to the individual judgment of the medical man in attendance.

4. That in cases of central adherence of placenta the safest and best practice is to separate the placenta entirely.

5. That in cases where the placenta is adherent in the latero-cervical zone of the uterus partial detachment may be sufficient, but if the hæmorrhage is not arrested, the whole mass should be removed and means of delivery at once instituted.

6. That the colpeurynter is the only tampon that can be safely used in these cases—that sponge, silk handkerchiefs and other forms of tampon are nasty, filthy and septic, and should never be employed.

7. That the bi-manual treatment, whenever possible, is the best and the speediest form of delivery.

8. That chloroform must be administered in all cases in which manual interference is necessary.

In discussing these propositions, Dr. Morris said that there is no emergency in obstetrics so dangerous, and in which skill, judgment and energy are so necessary, as hæmorrhage resulting from placenta prævia. Statistics show that the maternal mortality in these cases is from twenty-five to forty per cent. Of the four last cases that had come under his notice, all in consultation, three proved fatal—two from septicæmia, on the fourth day, and the third from sudden and uncontrollable hæmorrhage. The fourth case, which recovered, was treated by a pupil of his own, who had lived in the Maternity Hospital, Vienna, for two years and was thoroughly acquainted with the procedures of that school. Dr. Parvin could not have had much experience in these cases, or he would not have recommended delay or palliative measures in these cases as he has done in his recent book. Patients die from two causes, anæmia and septicæmia. Septicæmia becomes essentially fatal in the presence of anæmia. The anæmia is the result of the repeated hæmorrhage permitted to take place under the expectant plan of treatment.

Statistics show that in cases of placenta prævia two-thirds of the children perish before the full term, and of those that are born alive one-half perish soon after birth; therefore, considerations of humanity would lead us to think only of the safety of the mother; indeed, in adopting measures for her speedy delivery, without regard to the safety of the child, more children would be saved in the end.

The manner of emptying the uterus must be left, as before stated, to the individual judgment of the practitioner.

The colpeuryter is the only tampon that can be safely used. It answers many purposes; it serves to arrest hæmorrhage by the pressure it exercises; it softens the cervix and leads to gentle and gradual dilatation of the os; it relaxes the vagina and soft parts, and thus prepares the way for the use of dilators, such as Molesworth's or Barnes' bags, or even the fingers, if practicable. The colpeurynter should be filled with hot water —hot as the patient can bear; this should be renewed every hour. Cotton and sponge tampons are a nuisance and should be discarded.

Colpeurysis is, he said, little known to the general profession. It is only those gentlemen who have been educated in Germany, particularly Vienna, who are acquainted with its remarkable usefulness. There is no other means so valuable in the induction of premature labor.

The safest and best mode in cases where the placenta is centrally adherent is to separate it entirely. This arrests hæmorrhage and clears the way for further procedures looking to rapid delivery. It is claimed, it is true, that the hæmorrhage does not proceed from the placental surface supplied by the tortuous uterine arteries, but from the uterine veins. This may be true to some extent; but when the placenta is removed pressure can be brought to bear on these bleeding vessels and the hæmorrhage thus be arrested. Separation of the placenta itself furnishes a source of irritation which excites the uterus to action, but we cannot trust to the mere hæmostatic resources of nature. The cases in which there is no uterine action are the most dangerous and require the promptest measures. The manipulation necessary in this condition will generally induce contractions. Astringents and ergot are useless; they only serve to encourage delay when delay means death.

When the head presents and labor pains are active, no manual interference is necessary. In cases of this character the hæmorrhage is absolutely arrested by the pressure of the head.

The bi-manual plan of delivery, recently brought into use, is, no doubt, the best and speediest form of delivery, but it is not always practicable. The young gentlemen who have recently returned from Vienna describe it as a very easy procedure ; but I am quite sure that gentlemen educated in the old school of midwifery will not so quickly recognize its great facility. Of course, if bi-manual version is not effected, turning by the ordinary method is the only alternative.

The following additional papers were read and discussed:

"Ante-Partum Hæmorrhage." By Wm. M. Findley, Altoona, Pa.

"Eclampsia." (Author deceased). Paper read by title. By Wm. T. Taylor, Philadelphia.

"Rupture of Uterus." By W. H. Wathen, Louisville, Ky.

"Management of Occipito-Posterior Position." By L. G. Boisliniere, St. Louis, Mo.

"Relationship between Puerperal Fever and Erysipelas in both its Acute and Dormant Forms." By A. McLaren, St. Paul, Minn.

SECTION ON OPHTHALMOLOGY, OTOLOGY AND LARYNCOLOGY.

Dr. J. L. Thompson, of Indianapolis, read a paper on "Observations on Displacement of the Crystalline Lens from Congenital and Other Causes." He said:

The first three cases in the above report corroborate the writings of others as to the influence of heredity in congenital displacement of the lens.

Cases II and IV lead one to the conclusion that an eye with a congenitally displaced lens is an exceedingly weak organ, and very prone to progressive luxation, to cataract, and to glaucoma.

All of these were myopic, the myopia being due to lens anomalies and not to elongation of the eyeball—as was proved, both by the ophthalmoscope and by positive glasses, in the cases where the lens had fallen below the axis of vision.

I would also beg leave to call attention to the methods employed in replacing the lens in case No. II, and would suggest that, should one fail by manipulation, he would be justified in evacuating the anterior chamber by a free corneal incision, taking care, of course, not to wound the lens capsule, as one might by that means confidently expect the lens to bound through the pupil the moment that the aqueous escaped.

The most fruitful cause of spontaneous luxation of the lens is subacute inflammation of the uveal tract. Often have I seen it take place during the course of aquo caprulitis keratitis punctata.

Spontaneous luxation of the lens is also often the cause of acquired myopia in elderly persons. Not infrequently have I seen persons who on examination were found to be highly hyperopic and for whom I have prescribed positive glasses, even for infinite distance, and have seen these same persons again, when they needed just as strong negatives as they formerly did positives; but have almost invariably found the anterior chamber more shallow than when first examined, and congestive changes in the fundus with floating bodies in the vitreous humor. Case X shows that the spontaneous cure of cataract is by no means impossible, that it cannot always be accounted for on the theory of a falling of the lens below the upper pupillary margin, nor by injuries rupturing the capsule and subsequent absorption; but that it does, in a small number of cases, first become dislocated, then disintegerate, liquify, and regain transparency.

In luxations of the lens from traumatic causes, such peculiar and marvelous results are so often met with that were one to write a book on that subject alone, he would be classed with such authors as DeFoe or with Herodotus prior to the excavations about Nineveh and Babylon.

Resumé:

"1st. Heredity plays an important part in congenital displacement of the lens.

"2d. Congenital displacement of the lens is a dangerous anomaly which is very liable to lead to progressive luxation, to cataract and to glaucoma.

"3d. Most cases of congenital displacement are highly myopic, and said myopia is due to the malposition of the lens and not to elongation of the antero-posterior axis of the globe.

"4th. Spontaneous luxation of the lens is, in a very large proportion of cases, due to congestion and sub-acute inflammation of the uveal tract, and "second sight" as the acquired myopia of elderly persons is often due to this cause.

"5th. Partial, spontaneous luxation of the lens occasionally results in the spontaneous cure of cataract, not as is usually the case, by the falling of the lens below the upper margin of the pupil, but by degenerative metamorphosis and frequent liquefaction.

Other papers were read, as follows:

"Sympathetic Opthalmia." By C. M. Hobby, Iowa City, Iowa.

"Hydrobromate of Hyoscine as a Mydriatic." By J. M. Ray, Louisville, Ky.

"Treatment of Hypopyon Keratitus with Frequnt Irrigations of Sublimate." By F. C. Holtz, Chicago, Ill.

"Some of the Ophthalmological Clinics of Europe." By J. W. Heustis, Pittsburgh, Pa.

A boy, illustrating the results either of pemphiges or essential shrinking of the conjunctiva in both eyes, was exhibited by Robert Tilley of Chicago, Ill.

SECTION ON DENTAL AND ORAL SURGERY.

In this section the papers announced for the afternoon's session were not read, but Dr. Charles P. Pruyn read a paper on "Dental Diagnosis and Prognosis," followed by Dr. A. E. Baldwin on "Conservative Dentistry."

SECTION ON STATE MEDICINE.

Those in attendance upon this Section listened to the reading and discussion of the following papers:

"Influence of Military Life on the Health of the Soldier." By Major Mersi K. Taylor, Surgeon U. S. A.

"The Physical Basis of Brain Work." By Woods Hutchinson, of Iowa.

"Hygiene of Infancy and Childhood." T. B. Grenley, of Kentucky.

SECTION ON DISEASES OF CHILDREN.

The following papers were read before the members of this Section:

"Spasm of the Larynx and Oesophagus." By C. Briggs, St. Louis, Mo.

"Infantile Feeding, especially with reference to Subjects with Infantile Eczema." By L. Duncan Bulkley, New York.

SECTION ON PRACTICE OF MEDICINE, MATERIA MEDICA AND PHYSIOLOGY.

The following papers were read in this section:

"Glanders in the Human Subject, with a Case." By C. N. Cooper, Cleveland, Tenn.

"Unique Case of Athetosis resulting from a Railway Shock." By C. H. Hughes, St. Louis, Mo.

"Diseases of the Dura Meter producing Motor Paralysis, Facial Spasms and Neuralgia." By Wm. B. Fletcher.

"A New Method of Producing Local Anæsthesia of the Skin." By H. J. Reynolds, Chicago.

"Aids in the Prevention of Fevers." By R. W. Seay, Fitch's Point, La.

WEDNESDAY'S PROCEEDINGS.

THE GENERAL SESSION.

The Association was called to order at 10 a.m. by President Gregory. After prayer by Rev. Mr. Gunsaulaus, D. D., Dr. J. V. Shoemaker moved that the rules be suspended and the business taken up and disposed of before the addresses were heard. It was unanimously carried.

The committee of arrangements gave notice "that the exhibition of the police patrol would be repeated this morning on Michigan avenue south of Jackson."

Dr. N. S. Davis asked permission to give notice that the library of the late lamented Professor Jewell was on sale at the store of A. C. McClurg & Co., corner Wabash avenue and Madison street, and the instruments, etc., at Sharp & Smith's, 73 Randolph street. He said these included the greater part of the estate, and all sales made would much benefit the children of one of the most untiring men in the medical profession.

The Board of Trustees for Publishing the Journal presented their report for the year ending March 31, 1887. The report of Dr. N. S. Davis, the editor of the Journal showed that the weekly edition had been 4,387 copies, of which 3,478 have been sent to members of the Association and 909 to regular subscribers and exchanges. This shows a net increase in the membership of 104 and in total weekly circulation of 116. There have been 4,800 copies of the Journal printed each week.

The receipts at the office of publication were: Moneys received from subscribers, advertisers, reprints, and extra journals have been $7,580.63, of which $2,494.09 was from subscribers, $751.35 from reprints and $4,335.19 from advertisements. This makes a net increase of $2,250.17 in receipts over the previous year. The cost of publication has been $13,162.01 of which $751.35 was for reprints, making the cost of the publication of the Journal $12,410.66, an increase of $1,426.99 over the preceding year. The cash value of the association printing office, after deducting 15 per cent. for wear, is $921.34 to which $137.22 worth of type, etc., have been added during the year. The actual additions to the association during the year was 506, and new subscribers 18. But 493 members have been dropped from the lists for various causes.

Dr. Wm. G. Eggleston has continued to fill the position of assistant in the editorial chair.

Only $2,758.95 has been expended during the year for editorial work.

The Journal will be increased four pages during the coming year, and Dr. Davis will continue in the editorial chair.

Dr. Deering Roberts, of Tennessee, rose to a question of privilege, on a matter in the hands of the Secretary. The Secretary read the following communication:

To the President and Members of the American Medical Association: — GENTLEMEN: Satisfactory acknowledgments having been made in *The Chicago Times* of this morning as regards its assertions in the editorial columns of a preceding issue, reflecting upon the regular medical profession of Chicago and elsewhere, I would most respectfully beg leave to withdraw the resolutions I offered on yesterday morning. Very respectfully, etc.

DEERING J. ROBERTS, M. D.

Dr. Morris, of Baltimore, moved that Dr. Roberts be allowed to take his resolutions from the table. Carried.

Dr. N. S. Davis read the report of the Special Committee on Changes in the plan of Organizations and By-Laws of the Association, appointed in accordance with the following resolution adopted by the Association at the last annual meeting:

Resolved, That a committee of nine members, including the President, the President-elect and four Vice-Presidents elect, be appointed by the Chair to consider the various propositions looking to the amendment of the organic law of the Association by the establishment of branches or in any other way; said committee to report at the next annual meeting what measure of organization, if any, may be desirable."

This resolution was inspired by the desirability of a more permanent and representative busi-

ness committee to perform the work done by the nominating committee, and, second, the desirability of increasing the paying permanent membership. Some had suggested the formation of branches, the members of which would be permanent members of the Association and therefore liable for annual dues. This plan, copied after the British Medical Association, the Committee did not favor.

Dr. Rayburn moved that the report be received.

Dr. Jennings moved that the report be received and adopted.

Dr. Wathen saw objections to the report, but nevertheless hoped it would be adopted.

The motion was put as amended and carried.

Then followed a long and animated discussion as to the legality of adopting the amendments to the constitution without their laying over for one year.

Dr. N. S. Davis made the point that, under the resolutions appointing the committee, the matter could possibly be constituted as an amendment.

Dr. Quinley thought the whole proceeding out of order. The one way was to adopt the amendments to the by-laws and allow the amendments to the constitution to lie over.

Dr. Bell moved that it was the sense of the Association that the amendments had been presented a year ago.

After an animated discussion, during which much confusion existed, and the chair appeared puzzled, a vote was taken on the motion of Dr. Bell, which resulted in 272 for the motion, and 232 against.

On the announcement of this decision there was much confusion, and comment was vigorous. The chair ruled all out of order and proceeded with the business; the next being the call of the nominating committee which was as follows:

NOMINATING COMMITTEE.

Alabama, W. C. Cross; Arkansas, C. G. Ewing; California, J. W. Robertson; Colorado, C. Drummond; Connecticut, W. H. Whitmore; District of Columbia, J. M. Toner; Delaware, ———; Florida, M. B. Phillips; Georgia, A. G. Whitehead; Illinois, E. P. Cook; Indiana, T. B. Harvey; Iowa, Wm. Watson; Kansas, W. L. Skenck; Kentucky, D. S. Reynolds; Louisiana, T. G. Richardson; Maine, D. E. Marston; Maryland, T. B. Evans; Massachusetts, E. W. Cushing; Michigan, Wm. Brodie; Minnesota, J. A. McGaughey; Mississippi, T. R. Trotter; Missouri, J. M. Allen; Nebraska, W. M. Knapp; North Carolina, Eugene Grissom; New Hampshire, J. W. Parsons; New Jersey, Lott Southard; New York, Darwin Colvin; Ohio, X. C. Scott; Oregon, ———; Pennsylvania, E. A. Wood; Rhode Island, Wm. J. Burge; South Carolina, Thomas Legare; Tennessee, J. B. Murfee; Texas, R. W. Park; Vermont, S. H. Griswold; Virginia, Louis M. Nash; West Virginia, ———; Wisconsin, J. K. Bartlett; United Army, ———; United States Navy, D. Bloodgood; United States Marine Hospital Service, H. M. Goldsboro; Dakota, E. M. Darrow; New Mexico, Russell Bailey.

The meeting-place for the Nominating Committee was fixed for Apollo Hall.

The Secretary announced that the American Pharmaceutical Convention had appointed a Committee to present resolutions to the American Medical Association.

The next order of business being the reports of Chairmen, Dr. J. B. Lynch read the report on The Practice of Medicine, after which the Society adjourned to Thursday at 10 a.m.

SECTION OF ORAL AND DENTAL SURGERY.

The Section was presided over by Dr. Marshall, the Chairman.

The first paper was by Dr. K. B. Davis on "Pathological Conditions of the Teeth and Their Systemic Effects."

Dr. G. Frank Lydston, of Chicago, then read a paper entitled: "The Co-relation of General and Dental Medicine and Surgery." As the subject is one on which there is a wide divergence of opinion among dentists, we publish rather full abstracts. Dr. Lydston said:

Having been invited to address you upon some topic of a character suitable for presentation to progressive dentists and oral surgeons, I have thought it advisable to present to you my reasons for believing that the interests of the general practitioner and dentist have much in common. Personally, I am greatly interested in dentistry as a department of the great science and art of general medicine, and in my association with dentists I have derived both social and professional benefit, and have come to regard them as the co-laborers of their medical and surgical brethren in the field of science.

It was long argued by the members of my own department of science that the normal position of the dentist is that of a species of tooth carpenter—a mere mechanical drawer of teeth and plugger of real or imaginary cavities; and it is a serious reflection upon the liberality of the medical profession that many of its members accord much the same position to the dentist of to-day.

In not a few instances the modern surgeon

had indignantly resented the claims of dentistry as a surgical specialty, apparently forgetting in his illiberality that it was only about a hundred years ago that the general surgeon himself began to rise above the level of the barber and the monkish cutter for "the stone." Had there not been a Hunter, who arose like an apostle of scientific light, and began his physio-chirugical experiments years in advance of his day and age, the present status of general surgery might be most humiliating to contemplate.

It is an amusing fact that in some of our latter-day illustrations of the crudlity of the surgery of a past generation, dentistry and general surgery are most intimately associated. How consoling and gratifying to the conceit of ye pompous surgeon of to-day is the legend still to be occasionally seen surmounting a barber pole: "Bleeding, leeching, cupping, blistering, tooth-drawing and hair cutting done here."

Wedded centuries ago, Surgery and Dentistry drifted away from the barber, and, unfortunately, also from each other, pari passu with scientific progress. In these modern times we are striving to reunite the two branches of healing by a common interest in science, and upon the basis of a division of labor, i. e.: specialism. It is perhaps fortunate for all concerned that an occasional barber exists who is capable of demonstrating to us the common and humble origin of both specialties.

There has been a striking interdependence of most of the modern improvements in dental and surgical science. Although not generally so accepted, John Hunter's famous experiment of grafting the spur of a chicken cock upon its comb really foreshadowed not only the operation of skin grafting, but that of tooth grafting and tooth implantation, a procedure which has recently been brought so prominently before the dental profession by Dr. Younger. It is indeed singular that the operation of tooth transplantation and implantation was not earlier discovered, inasmuch as the various epithelial tissues and appendages are much alike in their manner of growth and development, and the growth of an implanted or transplanted tooth is hardly more remarkable than the phenomena attendant upon the attachment and growth of miliary skin grafts. That a tooth which has been apparently dead for a considerable time should grow after implantation is no more wonderful than the growth of skin grafts which have been transplanted from the dead to the living body. I have myself succeeded in the transplantation of grafts from a corpse dead forty hours, to a healthy living ulcer. As an absolute verification of this, I have grafted the skin of a negro, dead nearly thirty-six hours to the leg of a white man, and with success, the area of black skin resulting being quite conclusive. Another peculiar fact is that apparently effete epthelium scraped from the surface of the skin, and sprinkled over the granulations of a healthy ulcer, will result in the development of new little islets of skin and thus materially hasten cicatrization.

I understand that living teeth have been transferred from the human mouth to the comb of a cock, and thus preserved for future use, the teeth meantime absorbing nutriment from the circulation of the fowl. If this be practicable, the procedure brings dental surgery of to-day and the now famous experiment of the immortal Hunter very near each other. While my digression may seem irrelevant to some, I think that it is justified by this kinship between skin grafting and tooth grafting.

The histo-genetic power shown to exist in epithelial structures has been shown to exist in others. There seems to be a general law pervading all organic life, to the effect that the power of reproduction and repair of organized matter is in inverse ratio to its degree of differentiation. This holds true of cells as well as bodies completely organized. The star-fish may be dismembered, but it reproduces the lost segments. Smash the amæba, and we have as many new amaeba as we have particles. Spiders, crabs, craw fishes, and some other animals speedily reproduce lost limbs and other appendages. So we see in cells, that epithelial cells are possessed of great vitality, and not only grow themselves, but excite the property of rapid growth in any cell with which they may come in contact. Degraded epithelial cells grow more rapidly than the more perfect forms, as is evidenced by those sad cases of carcinoma and sarcoma so often met with. Connective tissue cells have an innate power of proliferation and propensity for differentiation upon which all processes of repair and growth of all kinds, physiological or pathological, depend. Irritate the tissues, and these propensities are forthwith brought into action.

The labors of the general surgeon showed us long ago that bone could be reproduced from periosteum, and that most daring operator, the late James R. Wood, showed in his noted case of phosphorus necrosis, that the entire lower jaw might be reproduced after its ex-section.

The dental and oral surgeon has not been at all backward in taking advantage of this extraordinary reproductive power of the maxillary periosteum, and my progressive friend, Dr. J. S. Marshall, has recently operated upon the maxil-

lary in a manner which would put some of our general surgeons to the blush. Such operations do not savor very strongly of the tooth-pulling mechanic.

The dentist has not only shown himself to be capable of assimilating the discoveries of surgical science, but he has contributed materially to the art of surgery. To a dentist we owe the discovery of anæsthesia, the greatest boon ever conferred upon suffering humanity.

Much of our knowledge of that valuable drug the peroxide of hydrogen has been due to its use in the practice of dentistry.

Even the field of microscopy has been invaded by the dental scientist. Much of our present knowledge of the forms and growth of micro-organisms is due to the researches of that indefatigable worker Dr. G. V. Black; and it would be well if every physician would study the results of this gentleman's labors in his chosen field.

We have not only come to regard dentistry as a special branch of the healing art, but we are forced to acknowledge that it is a most important branch.

In the words of the late Professor Gross, "Dentistry is the most important specialty in medicine. Many people come into the world and go out of it who never require the services of other specialists, but no child is born that does not sooner or later require the services of the dentist." The words of the Nestor of American Surgery are excellent testimony in favor of dentistry as a necessary specialty, and it would be well if this truth were more generally appreciated.

The classification of dentistry as a specialty of general surgery is justified to a greater degree than in the case of any other specialty. As my lamented friend, the late Professor Van Buren, used to define it, "Surgery is that branch of the healing art which takes charge of all those diseases and injuries which require in their management the use of instruments and mechanical appliances, operations, or especial manual dexterity." To no other specialty does this definition so aptly apply as to dentistry, and I can scarcely conceive of a single dental or oral operation that does not require all of the qualifications mentioned. This eminent surgeon said further, with reference to general surgery as a specialty of medical science, "that a specialty should be the outgrowth of a liberal professional education"; in short, that a true specialist should be a man who knows "something of everything, and everything of something." Every specialty should be evolved from the general field of scientific labor, and its selection should be modified by experience, the law of division of labor, and special adaptation. In the present paper we have but to do with the dental specialist, and it is to him in particular that we at present apply this general rule.

The dentist is nowadays expected to be a fair anatomist, and it should no longer be considered reprehensible for him to know more than the anatomy of the teeth and jaws. He may never realize the fact that he has an ileo-cæcal valve, or a vermiform appendix, but a little enlightenment upon the subject will not render him less capable of skillful dental work; and when an obstreperous cherry pit lodges in his appendix, he may console himself in the fact that he knows pretty nearly where the trouble is located. He is, of course, expected to know all about the structure and development of the teeth and jaws, the muscular mechanics in their movements, and their nervous and vascular supply, in order that he may occasionally discourse learnedly upon centers of classification, intermaxillary bones and synchondroses *ad infinitum*, as does my enthusiastic friend, Dr. Talbot, when discussing his hobby, "dental irregularities." The necessity for a knowledge of a physiology is self-evident, the embryonal development and eruption of the teeth being of especial importance. A knowledge of the physiological secretions is a necessity, else how could the effects upon the teeth of the morbid conditions affecting them be studied? In the study of normal and morbid secretions a knowledge of chemistry is necessarily involved. Chemistry and metallurgy are further necessary, in order that the student of dental science may become familiar with the various materials and implements with which he works and the composition of the teeth. The dentist requires a certain amount of therapeutical and pharmaceutical information. The dental *materia medica* is becoming an important factor in dental education.

Perhaps the most important branch in dental education is pathology and pathological anatomy, particularly that division of the subject which has been termed "surgical pathology." The amount of general medical and surgical knowledge requisite to a clear understanding of the morbid changes which are under the attention of the dentist is far greater than is supposed by those narrow-minded individuals who regard dentistry as a species of tooth carpentry. The dentist must thoroughly understand the forms, causes and treatment of caries and necrosis of the teeth and jaws, a knowledge of which will open up to him a vast field of general surgical information. If he understands maxillary necrosis he will also understand the same disease as

affecting other bones. He should pay considerable attention to syphilis and its treatment, as causes of caries and necrosis of the teeth and jaws, and inflammation or ulceration of the mucous membrane of the mouth. Being familiar with such lesions, he must necessarily know much of the mucous inflammation and ulceration in other situations. He must learn all about the causes, anatomy and treatment of suppurative inflammation about the jaws, and when he has done so he will have mastered the most important portion of general surgery.

Neoplasmata, their causes, method of formation and structure, should be familiar to him, for he may be confronted at any time with epulis cancer of the jaws, extosed or other conditions requiring surgical skill for their relief or cure. He should know all of the important details regarding fractures, their method of union, and mechanical and therapeutical treatment.

The necessity of a thorough uuderstanding of the general principles of medicine, particularly as regards the causes, results and therapeutics of perversions of general nutrition, can scarcely be overestimated. This is most aptly illustrated in those conditions of malnutrition which result from syphilis, rickets and struma, diseases which react most injuriously upon the teeth and jaws. A fair ability to differentiate the various oral lesions of syphilis from benignant affections, and from each other, is requisite. As my views upon this subject were presented before your section at the St. Louis meeting of last year, it is unnecessary at this time to consider the topic in detail, although I consider it one of the most important that can be brought before the progressive dentist.

It is a long way around from defective molars to perverted nutrition, but from imperfect mastication may result imperfect digestion and assimilation, and from the latter condition there may occur such a strain upon the liver and kidneys that actual structural diseases result. Gout is a dyscrasic affection, which may be expected from such conditions of perverted physiology. Conversely, as has been already indicated, morbid appearances of the teeth and gums may indicate certain morbid conditions of the general system, which bear a casual relation to the dental imperfections. As illustrations may be mentioned syphilis, rickets, mercuriolism, struma and scurvy.

A subject with which every dentist should be more or less familiar is the serious affection known as septicæmia, or preferably septæmia or blood poisoning.

Instances of fatal blood poisoning have been known to follow so simple an affection as alveolar abscess, as well as more grave forms of suppurative inflammation about the jaws and teeth. Mild cases are more frequent than is generally supposed. Only a short time since I met with a case of mild septæmia following an alveolar abscess in one of my personal friends. In this instance the dentist in attendance, and a physician to whom he referred the patient prior to his visit to me, failed to recognize the real condition present.

In connection with this condition of sepsis the dentist may simplify this study of the subject if he will remember that septicæmia and pyæmia so-called, are but phases of the same constitutional condition, and are due to the local absorbtion and subsequent general dissemination of the same septic material. The differcnce between the two phases of disease are those of degree, not kind, and they depend, not upon the existence of a different materies morbi, but upon: 1st, the primary intensity of the poison; 2d, the facility with which it is absorbed; 3d, the quantity absorbed and the duration of the period of its absorbtion; 4th, the rapidity of its elimination; 5th, and the most important consideration of all, the inherent vitality or resisting power of the patient.

By studying the subject of blood poisoning in this manner, it may be reduced to a simple and logical basis. As presented in most of the works on surgery, septicæmia and its various phases constitutes a subject so confusing that very few students ever succeed in mastering its intricacies. The dental specialist should not only familiarize himself with the clinical features of septic iufection, but he should study the results obtained by the investigations of Pasteur, which foreshadowed all of our knowledge of septic processes. He should also understand the principles laid down by Lister in his system of anti-septic treatment, which involves all of those cardinal principles which govern us in in the prophylaxis and treatment of blood infection from suppurating wounds.

Look where we may in the chosen field of the dentist, and we are confronted by intricate problems of a general and most diverse surgical character. Who among our general surgeons can say after such a survey of the science and art of dental and oral surgery, that the skillful and studious practitioner of this specialty is not a surgical scientist and a co-laborer in that beneficient art whose progress has been illumined by Hunter, Bilbroth, Paget, Parn, Mott, Van Buren, Wood and others, whose names, though equally famous, would fill my paper to overflowing. I maintain that no man of even average intelligence can become a thorough dentist without at

the same time becoming a pretty good physician and surgeon. He should, by all means, possess the general knowledge of the average practitioner of general medicine, and in addition, he should have the general knowledge and mechanical talent necessary to treat the peculiar class of cases brought before him as a surgical specialist. There is a special necessity for general medical knowledge in a certain direction, to which I desire to call attention. Every educated dentist is now supposed to familiarize himself with anæsthetics and their method of administration, but, unfortunately, he is not expected to know very much about those conditions which contraindicate their use. There are various morbid conditions of the heart, lungs and kidneys, which the merest tyro might discover by a little attention, and which I fear, often escape the attention of the dentist. I believe that no one should ever give an anæsthetic who is not qualified to make a fairly accurate estimate of the condition of the heart, lungs and kidneys; yet this is often done in the dentist's chair. Much can be determined by careful observation of the patient's general appearance. I recall several cases in point: A friend of mine and a competent dentist, undertook the administration of chloroform for the purpose of extracting a carious tooth. He was assisted by a lady physician who considered herself well qualified. The affair did not concern me, but as I had an adjoining office I happened to get a glimpse of the patient's face, and decided to remain within call. Hardly had the amæsthetic fairly begin its work before the stertorous breathing of the patient alarmed my friend so that he called me to his assistance. It was high time, for if ever a patient was on the verge of death from asphyxia and heart paralysis, this one was. I succeeded in recuscitating her, but she subsequently passed through an attack of renal and pulmonary congestion that well nigh ended her life. The puffy eye-lids, red face and feeble circulation of this patient should have warned my friend of the danger of vasa motor paresis to which this patient was exposed, and should have suggested an urinalysis which would have developed the existence of chronic Bright's disease. I have since seen a similar case from nitrous oxide. In this case also, there was the sequence of acute pulmonary congestion, but in a patient who was phthisical. There is an old adage to the effect that "it is a poor rule that does not work both ways." The doctor should have some special dental knowledge. Some time ago I was consulted by a young man with a suppurative tumor of the jaw. He had been treated for some weeks by an aspiring surgeon who pronounced the case one of "actinomycosis" and proposed to operate upon it. I discovered that the tumor was a phlegmonous inflammation secondary to a carious tooth, and which had existed for eight months. Dr. Austin, who saw the case with me, extracted the tooth to which I attributed the trouble, and in two weeks without further treatment, the case was well. Some of my friends who are present will recall this case, and the controversy in which I became involved on account of my inability to diagnose "the second case of actinomycosis ever seen in America."

As an offset to this case, I once saw a case which a dentist referred to me, for the purpose of having a tumor of the gum removed. I found a spongy, vascular growth the size of a hickory nut protruding upon both the anterior and posterior surfaces of the lower incisor teeth. On examination I discovered the tumor to be a mass of spongy and exuberant granulations due to the irritation produced by a mass of tartar about the incisors. Removal of the tartar with the application of nitrate of silver to the tumor cured the case completely.

A fact recently determined, and one which is of great importance, is the association of neuralgias of various kinds, and perturbations of sight and hearing, with carious teeth. This necessitates a certain amount of neuralogical knowledge on the part of the dentist.

In my presentation of the claims of dentistry as a surgical specialty, I do not wish to be understood as advocating the presumption of the rights and duties of the general practitioner by the dentist. A true specialist should render unto Cæsar those things which are Cæsar's—"i. e.: he must on proper occasion consult the general practitioner. I know of one individual who apparently attempts to monopolize the entire field of medicine and surgery. So many and varied are the cases which he collects for the gaze of the admiring public, that his office strongly reminds one of a dime museum representation of a chamber of horrors. Until quite recently this professional anomaly occupied the position of examiner to a life insurance organization. Imagine the sudden metamorphosis of the filler of teeth into the analyst of the urine. Versatility of talents is an admirable quality, but under certain circumstances its exhibition may be in decided violation of decency and good taste, to say nothing of the question of "loaves and fishes."

In passing, I will merely allude to the necessity for a knowledge of some of the natural sequences of pregnancy. The better class of dentists are of course familiar with the fact that dental operations are not always attended by

good results, and are sometimes absolutely dangerous in the pregnant state. This fact, although disputed by some, is of sufficient importance to merit most serious consideration. Even if disputed, the patient and not the operation, should have the benefit of the doubt.

To show, in conclusion, that I am not alone in my desire to see the profession of dentistry recognized as a part of general medicine and surgery, I may cite the existence of the dental section of the American Medical Association, present here to-day. More pertinent still, is the fact of the establishment of a dental section in the coming International Medical Congress. It is to be hoped that the dental profession will give this department of the Congress their most earnest and harmonious support, for, if it be successful, it will give the claims of the dental profession to surgical specialism an impetus that nothing else would afford.

The third paper on the programme was one by Dr. A. H. Thompson on "Pathological Heredity and Congenital Abnormalities of the Teeth."

In this section the work has been thorough, largely due to the efficient manner in which the officers have performed their work.

The nominees for the ensuing year are Dr. J. Taft, of Cincinnati, for chairman, and Dr. E. S. Talbot, of Chicago, Secretary.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

The nomination of officers for the ensuing year were Eli Van DeWarker, of Syracuse, N. Y., chairman, and E. W. Cnshing, of Boston, secretary.

Dr. George F. French, of Minneapolis, then read a paper on

THE CHIEF SOURCE OF DANGER IN THE USE OF THE UTERINE SOUND,

in which he said:

It is the prevailing opinion of the medical profession that the principal danger to guard against in probing or sounding the uterus is traumatic lesion from incautious handling of the instrument. This is also the teaching, positively or negatively, of nearly all the leading books on gynæcology, including Emmet, Thomas, Goodell, Mundé, Hewett and Courty.

Thus, Emmet says in the third edition of his "Principles and Practice of Gynæcology:" "Many a poor woman has endured years of bad health from the carelessness of her physician in overlooking a latent cellulitis which became rekindled by the unskillful use of the probe or sound." In conformity with this view, Prof. Dudley, in his recent contribution to "Pepper's System of Medicine," conveys at once his own opinion on the subject, as well as his impression of Emmet's teaching that traumatism is the danger to be averted, by quoting Emmet as to the dangerous use of the sound "from frequent lighting and relighting of pelvic inflammations by injudicious slight manipulations."

Writing on the same subject, Mundé says, "The precautions to be observed in using the uterine sound or probe are chiefly comprised in the two words, delicacy and gentleness."

So Graily Hewitt—fourth edition, "The Diseases of Women," writes, "As a general rule patients experience no inconvenience from the use of the sound if it be carefully introduced."

In the fifth edition of Thomas, Nonat and Scanzoni are cited to show that a far greater danger attends the use of the sound than is commonly recognized. From the context the reader would infer that the danger is from traumatic lesion, at least no other source of danger is referred to. Chrobak, in "Billroth's Handbook of Diseases of Women," in citing Broca's case of death following the use of the uterine sound, says, "the number of this class of cases published and unpublished is quite large, and the number still larger where a slight or severe illness ensues without a fatal result." When we consider the remarkable tolerance of the uterus of such surgical procedures as curetting, divulsing—not to mention accidental perforation—it seems that some more obvious cause must be sought. This prolific source of danger—and one comparatively unrecognized—lies in septic matter conveyed into the uterine cavity by the non-disinfected sound; a danger, which when we come to study the histological nature of the uterine cavity will be recognized beyond a doubt. We can all remember when traumatism was the bug-bear that deterred us from entering the peritoneal cavity; and when a healthy patient every now and then succumbed to cystitis (as the death-certificate read) after being merely catheterized, we regarded it as due to traumatic shock, but we have learned better and the rationale of a septic infection is now painfully easy to understand. Some surgeons, like Mundé and Tait, are so absolutely clean in their methods of doing surgical work, no septic results occur, though they are so unconscious of septic danger as to ignore its existence in their writings. Thus Mundé sounded the uterus 5000 times without a catastrophe, which only proves that Mundé practises better than he preaches; a criticism equally true of the pyo-salpingist of Birmingham. I would not detract one iota from the importance of delicate manipulation in exploring the uterine

cavity, but I maintain that the danger from traumatic lesion is completely overshadowed by that from septic infection.

Noggerath's doctrine of latent gonorrhœa is just beginning to be fully recognized, but instead of being an isolated, exceptional fact, it is one of a large group of facts which illustrate a general principle. From the researches of D. Berry Hart, Lindgren and Leopold, it has been demonstrated that the intra-uterine mucous membrane is really a lymphatic gland or a lymphatic surface intersected with glands and blood-vessels. To Hart belongs the distinction of being the first among English-speaking writers to systematically call attention to this comparatively unrecognized danger. He says: "The great dangers to the patient from the passage of the uterine sound are abortion and abrasion of the mucous membrane with absorption of septic matter and resulting cellulitis and peritonitis. Two cases of this nature are reported by Saenger of Leipsic. Manifestly a gonorrhœal pyo-salpinx might be communicated as readily by an infected sound as by the extension of the disease from the vagina. So to a septic pyo-salpinx non-gonorrhœal, whether derived from the virus of erysipelis, pyæmia, diphtheria or scarlet-fever may be carelessly transferred from the gynæcologist's hand to the sound, and give rise to a pelveo-peritonitis with more or less systemic infection.

Among the German authors, Fritsch has done signal service to emphasize these dangers, and forcibly says: "Always before introducing the uterine sound, dip it into a three or five per cent. solution of carbolic acid, even though properly cleansed directly after its previous use."

Although these words belong to the New Testament of medical belief, and were uttered several years ago, the momentous truth inculcated is as slow of appreciative recognition as the oracles of the inspired Semmelweis.

Dr. Hiram Carson, of Maple Hill, Penn., read a paper on

ABORTION,

stating it was his practice when there was hope of saving the embryo to rely on the use of anodynes to relieve pain and prevent contraction of the womb, but when he believed there was no hope of saving it and miscarriage would occur, he uses the sponge tampon in the vagina to prevent excessive flooding, and opium for its effect upon the nervous system, and then waited, sometimes months, until the mouth of the womb should open sufficiently to enable the removing of the ovum with the fingers.

He believes early dilation by tents and forceps to be dangerous, and never uses them, while with the treatment spoken of he has never lost a patient or known of any other physician losing one.

He has never used antiseptics and does not believe there is danger of septicemia from absorption of putrid blood. Deaths not infrequently occur from the use of tents, causing metritis and peritonitis, and these can not be attributed to absorption of putrid blood.

He thinks the washing out of the vagina and womb with antiseptic fluid after the miscarriage unnecessary, annoying and sometimes harmful to the patient.

The author stated the principal object of his paper was to prevent the meddling with abortion cases that is likely to result from the teachings of the day, especially the use of tents and forceps, which have proved dangerous to the mother.

Other papers in this section were as follows:

"A Case of Tubal Pregnancy, with Specimen.' By C. R. Reed, Middleport, Ohio.

"Uterine Subinvolation and Aereolar Hyperplasia." By Joseph Eastman, Indianapolis, Ind.

"A Case of Pyosalpinx—Recovery withou Operation. Remarks upon Vaginal Temperament in Pelvis Inflamation." By W. W. Potter, Buffalo, N. Y.

"Laparatomy as a Cure for Tuberculosis o the Peritoneum." By Ely Van De Warker, Syracuse, N. Y.

"Hysteria and Ovaries." By B. E. Hadra, Austin, Texas.

"Technique of Ovariotomy." By C. M. Wilson, Philadelphia, Pa.

"The Use of the Buried Continuous Animal Suture in Laparotomy and in Perineorraphy." By E. W. Cushing, Boston, Mass.

"New Form of Suture Pin for Use in Perineal Operations." By J. H. Kellogg, Battle Creek, Michigan.

SECTION ON SURGERY AND ANATOMY.

It was first moved and seconded that the section meet at 2 p. m. The nominations for officers resulted in the selection of Dr. Donald McLean for Chairman, and Dr. B. A. Watson, of Jersey City, for Secretary.

The first paper was by Dr. Andrews, of Chicago, on "Solution of Necrosed Bone in Spinal Abscess by Dilute Hydrochloric Acid."

Dr. H. O. Walker, of Detroit, Mich., read a paper upon "External Perineal Urethrotomy," reporting eight cases, in each combining with it internal urethrotomy.

Of the eighteen cases, reported one was operated upon twice, making nineteen operations in all. One died within a week following the operation, due to surgical kidney. Fifteen were relieved

entirely of all previous symtoms, and the remaining two were much improved, although some urinary distress still remains.

In all the cases there is a tendency to recontraction of the urethra, though not from a want of thorough division of the cicatrical tisssue, as this was done in each case with the greatest care, and following out faithfully afterwards the introduction of full-sized steel sounds at stated intervals.

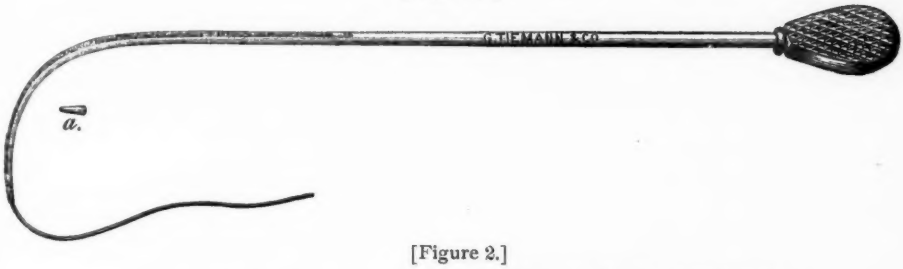
He also exhibited several instruments which he had devised and had made for him by Tiemann & Co., of New York. The first was a meatatome (Figure 1), which presents at its extremity a rectangular cutting edge, with a probe point at its upper border.

Tht doctor deems the gradual stretching of the prostatic urethra a proceeding of importance, not only in exploring the bladder, but in temporarily paralyzing that portion of the urethra, as it aids materially in relieving any cystitis that may and usually does exist in long standing cases of stricture of the deep urethra. For this purpose he devised the prostatic dilator as seen in Figure 4.

Figure 2 is a urethrotamy staff, to which is attached a whalebone filiform bougie, rendering its introduction easy and faciltates the completion of the perineal section with the triangular probe-pointed knife, as seen in Figure 3.

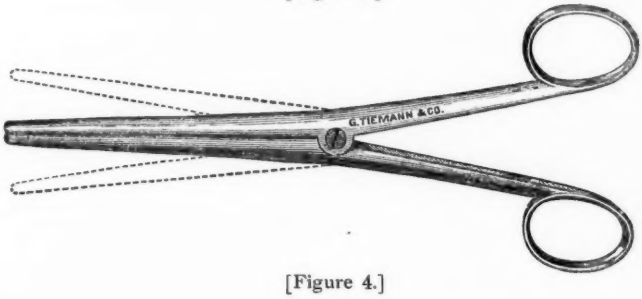
The instrument, as represented in Figure 5, consists of two parallel steel bars, the lower segmented near its distal end, and is held together by pivoted bars which can be separated or closed by means of a button screw. In the upper bar is a grove into which glides the knife, and when not in use is concealed by a small half bulb opposite the commencement of the curve. The distal used is two milimeters in diameter and tunneled,

[Figure 1.]

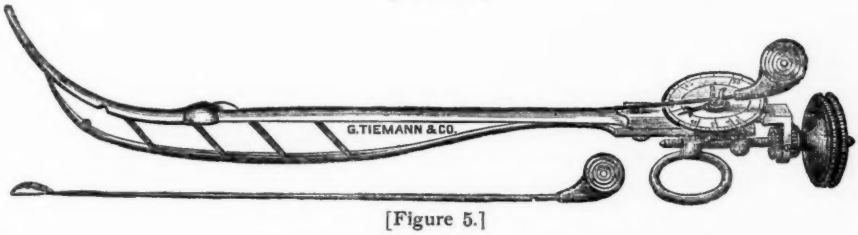


[Figure 2.]

[Figure 3.]



[Figure 4.]



[Figure 5.]

permitting it to glide over a guide, and by this manner we are able to cut the way through by pushing the knife forward from its concealment, and when it has passed the screw, dilating the urethra to the extent desired, that to be noted by the indicator, when the knife is drawn from behind forward and the cicatricial tissue divided. It will be seen that the instrument combines the properties of a tunneled sound, a dilator and a urethrotome.

In conclusion the doctor states that the accepted methods of treating strictures are by dilitation and incision, and that dilatation stands pre-eminent as a means of treating strictures in the great majority of cases. Yet it cannot be denied that the cutting strictures of large calibre has proved beneficial in many instances, and relieved many reflex troubles that would not yield to gradual dilatation. This is especially true of all strictures at or near the meatus. Although there is much weight of testimony in favor of the radical cure of stricture by incision, I am not as yet prepared to accept the statement, for I have cut many strictures dating back for a period of twenty years, and I do not know of any but will close up if not kept open by the occasional introduction of a sound. Old and tight strictures, that will not succumb to dilatation, are best treated by incision.

Dr. Robert Newman, of New York, gave a "Synopsis of a second hundred cases of Stricture of the Urethra treated by electrolysis." Dr. A. H. Wilson read a paper on "Prostate Gland; a review of its anatomy, pathology and treatment,"

The discussion of these three papers was very animated, the bulk of opinion being in favor of the methods of Dr. Newman.

The paper on "Surgical Treatment of Suppurative Pleuritis in Children" by A. G. P. Garnett was read by Surgeon General J. B. Hamilton.

The author stated that it was his purpose to consider the comparative merits of the operation of removing the pus by the old method of the trocar and drainage tube, with the more modern one of resecting or excising a portion of one or more ribs, restricting this comparison to cases occurring in children. The operation for the removal of pleuritic effusion, whether of pus, serum or blood, was practiced by the ancients as far back as the time of the Hippocrates, but not until 1665 was the ordinary trocar introduced and draining the pleural sac by this means resorted to. Scultetus, one of the most ingenious surgeons of his day, was the first to use a drainage tube.

But, following the history of this instrument to the present half century, we find the late Professor Gross says that in using the trocar in tapping the chest in empyema, out of 820 recorded cases but one death occurred from hemorrhage. Of 498 cases reported by Gunther in 1861, 302 were cured, 149 died and 16 were improved; and in 1879 Dr. Blake, of Boston, reported 18 cases operated on by incision as a means of introducing the tube, with 15 recoveries. It is to be regretted these cases were not classified according to age to show the relative rate of mortality between adults and children.

It is fair to suppose the majority of the cases reported were those of adults, and if such gratifying results were obtained with the advanced and chronic condition of the disease in the adult, how much more gratifying would have been the results had the operations been confined to children.

The author presented a statistical table, prepared by Dr. Godlee, of 34 cases of empyenia in children treated at the Eastern Hospital, London, including four cases treated at Brompton Hospital, giving the age of the patient and result of operation. Briefly, it appeared that of the 31 cases reported as cured in the table, 25 were subjected to the antecedent operation of aspiration, and six primary resections. Four of the 25 were cured by one aspiration alone, and the remaining 21 all subsequently treated by removal of one or more ribs.

Had the plan of inserting and retaining the drainage tube been adopted at first it is more than probable not one of the 21 children would have been subjected to the operation of incision of the ribs.

The author quoted the experiences of Dr. Henry L. Bowditch, of Boston, as supporting his views, this gentleman having performed the operation of tapping the chest oftener, perhaps, than any other man now living.

He says he has never deemed exsection of the rib necessary in children, and with his experience his judgment on this point should be regarded as conclusive.

Excision of a portion of one or more ribs for empyema as a substitute for, or supplementary to, the operation is comparatively modern date, Dr. Warren Stone, of New Orleans, being the first to perform the operation in this country.

The criticisms presented had reference to operation on young children exclusively, as the author desired to call attention to the importance of discriminating carefully in the surgical treatment of these cases between adults and children. He presented several cases as illustrating his vlews.

SECTION ON THE DISEASES OF WOMEN AND CHILDREN.

The following papers were read:

1. Epidermic and Hypodermic Medication of Infants, by J. A. Larrabee, of Louisville, Ky.

2. Scarlet Fever, by Dr. J. N. Love, of St. Louis.

3. Entero-Colitis, by S. E. Spern, of Delafield, Wis.

4. Infant Feeding, especially with reference to subjects with infantile eczema, by C. Duncan Bulkley. of New York.

5. "The Cause and Treatment of Infantile Eczema," by J. V. Shoemaker, of Philadelphia.

The author stated this to be one of the most common diseases of early life, and, while always disturbing and frequently obstinate, was more amenable to treatment than the eczema of adults.

It may appear in a variety of forms, and may attack all of the integument, but most frequently attacks the face, scalp, neck, chest, buttocks and upper and lower extremities.

Infantile eczema is practically due to one of four causes; first, insufficient or improper food; second, imperfect assimilation; third, deficient excretion; fourth, external irritation. The author then gave same valuable advice as to treatment.

The following formula was found valuable in connection with a liberal diet by the mother.

If the infant cannot be nursed by its mother, the best substitute is pure cow's milk, unmixed with any other substance whatever.

Cases due to imperfect digestion and ural-assimilation require careful study. Change of air is sometimes beneficial, cod liver oil, syrup of the iodiate of iron and quinine were effective remedies, the author citing when each was of most value.

In the local treatment, where itching is a marked symptom, various soothing ointments may be used, and applications of cold water, vinegar and water, leadwater and laudanum, or a saturated solution of bi-carbonate of soda will be found grateful and calmative.

Where the disease has become chronic the affected region should be covered with a starch poultice, or with oil, to loosen the crust, which must be carefully peeled off. Then stimulating ointments can be used.

The author stated he had intentionally omitted stating anything regarding the use of arsenic in the treatment. Arsenic was occasionally requisite in treating obstinate forms of eczema in adults, but was positively injurious to children. He had discarded its use in treating children for nine years, and was delighted with the results.

6. Diarrhœa Infantum, By George Wheeler Jones, of Danville.

The nominations in this section were: For Chairman, Dr. F. E. Waxham, of Chicago; and Dr. W. B. Lawrence, of Batesville, Arkansas, for Secretary.

SECTION ON PRACTICE OF MEDICINE.

In this section the following programme was carried out:

1. The Treatment of Felon without Incision. By L. Duncan Bulkley, New York.

2. Antipyrin in Rheumatism; its Value and Mode of Action. By N. S. Davis, Jr., Chicago.

3. Acute Fatal Delirium; Its Differential Relations. By E. C. Spitzka, New York.

The nominations in this section are: for Chairman, Dr. H. B. Baker; for Secretary, Dr. Armstrong, of Memphis, Tenn.

SECTION ON STATE MEDICINE.

In this section the following papers were read and discussed:

"The Necessity of Inspection of Food Animals." By Carl H. Horsch, New Hampshire.

"The Medical Climatology and Hydrology of Northern California." By J. W. Robertson, California.

"The Chemistry and Physiological Action of Tyrotoxicon." By Prof. V. C. Vaughn, University of Michigan.

SECTION ON MEDICAL JURISPRUDENCE.

"Expert Testimony." By John Godfrey, U. S. M. H. S., Louisville, Ky.

"Criminal Responsibility of Epileptics." By H. M. Bannister, Kankakee, Ill.

"The Intimacy of the Medical and Clerical Professions, with the Supremacy of the Former in the Sociological Sense at Least." By Rev. L. T. Jones, Moweaqua, Ill.

"Forensic Relations of the Puerperal State." By H. C. B. Alexander, Chicago.

"Expert Testimony." By Wm. C. Wile, Philadelphia, Pa.

SECTION ON OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

In this section the following programme was carried out:

"Nature and Treatment of Phlyctenular Ophthalmia." By Dudley S. Reynolds, Louisville, Ky.

"Results of a Year's Experience in the Abandonment of the Eye Bandage." By J. J. Chisolm, Baltimore, Md.

"The Causitive Relations of Ametropia to

Ocular Disease." By J. E. Harper, Chicago.

"After-treatment of Cataract. Extraction." By W. T. Montgomery, Chicago.

"A Case of Epilepsy Apparently Cured by Correcting Hypermetropia," and "Two Cases of Tumor of the Optic Nerve." By Geo. E. Frothingham, Ann Arbor, Mich.

THURSDAY'S PROCEEDINGS.

THE GENERAL SESSION.

The Association was called to order at 10:10 a. m. Prayer was offered by Jno. H. Barrows, D. D.

The announcements of the Committee of Arrangements were made by Dr. Chas. Gilman Smith.

The Loyal Legion met at Kinsley's at 8 p. m., H. K. McKillop and B. K. Davis were made members by invitation.

The Ontario Medical Society sent a congratulatory telegram to the Association.

The report of the Nominating Committee was presented by Dr. Wm. Brodie, the chairman. The following officers were recommended to the association for election:

President—A. Y. P. Garnott, Washington, D. C.

First Vice-President—Duncan Eve, Nashville, Tenn.

Second Vice-President—Darwin Colville, New York.

Third Vice-President—Chas. J. O'Hagan, North Carolina.

Fourth Vice-President—A. Stedman, Colorado.

Librarian—C. H. Kleinschmidt, District of Columbia.

Treasurer—R. J. Dunglison, Pennsylvania.

Permanent Secretary—J. S. Ranschoff, Cincinnati.

Trustees of the Journal—L. Connor, Detroit; E. O. Shakespeare, Penn.; W. T. Briggs. Tenn.

Judicial Council—J. Murphy, Minnesota; J. M. Tonor, District of Columbia; J. R. Bartlett, Wisconsin; A. B. Sloane, Missouri; X. C. Scott, Ohio; A. W. McClure, Iowa; J. W. Stormant, Kansas. Vacancy occurring in the Council—J. F. Hubbard, Indiana.

COMMITTEE ON STATE MEDICINE.

Alabama—Jerome Cochran, Montgomery.
Arkansas—R. G. Jennings, Little Rock.
California—J. W. Robertson, Creston City.
Colorado—P. Brumund, Idaho Springs.
Connecticut—F. H. Whittmore, New Haven.
District of Columbia—G.W. Cook, Washington
Florida—U. D. Phillips, Gainesville.
Georgia—T. S. Hopkins, Thomasville.
Illinois—E. P. Cook, Mendota.
Indiana—T. B. Harvey, Indianapolis.
Iowa—Geo. F. Jenkins, Keokuk.
Kansas—W. L. Schenck, Osage City.
Kentucky—Dr. Larrabee, Louisville.
Louisiana—T. G. Richardson, New Orleans.
Maine—Dr. Foster, Portland.
Maryland—G. H. Rohe, Baltimore.
Massachusetts—Grace Walcott, Boston.
Michigan—A. Alvord, Battle Creek.
Minnesota—C. W. Hewett, Red Wing.
Mississippi—T. R. Trotter, Duck Hill.
Missouri—Lester Hall, Marshall.
Nebraska—Wm. M. Knapp, York.
North Carolina—Eugene Grissom, Raleigh.
New Hampshire—W. Porter, Walpole.
New Jersey—B. A. Watson, Jersey City.
New York—A. N. Bell, Brooklyn.
Ohio—F. C. Bain, Kentucky.
Pennsylvania—A. C. Dunn, Pittsburg.
Rhode Island—W. J. Berry, Pawtucket.
South Carolina—Thomas Ligare, Charleston.
Tennessee—Richard Cheatham, Nashville.
Texas—J. H. Sears, Waco.
Vermont—S. H. Griswold, Rutland.
Virginia—H. M. Nash, Norfolk.
West Virginia—P. J. Rowan, Grafton.
Wisconsin—J. L. Bartlett, Milwaukee.
United States Navy—Dr. Bloodgood.
United States Marine Hospital Service—C. B. Goldsborough.
Dakota—E. M. Darrow, Fargo.
New Mexico—Ross Bailey, Las Vegas.

COMMITTEE ON NECROLOGY.

District of Columbia—J. M. Toner, Chairman, Washington.
Maryland—John Morris, Baltimore.
Arkansas—T. E. Murrell, Little Rock.
North Carolina—J. H. Tucker, Henderson.
Vermont—M. R. Crain, Rutland.
Kentucky—J. D. Brooks, Paducah.
Dakota—J. N. Weir, Fargo.
Kansas—H. C. Minney, Topeka.
New Jersey—J. F. Ill, Newark.
Illinois—E. F. Ingalls, Chicago.
Tennesee—J. M. Savage, Nashville.
New York—L. D. Trowbridge, Palmyra.
South Carolina—F. L. Parker, Charleston.
Minnesota—A. W. Strickfield, Eyota.
Iowa—J. M. Emmert, Atlanta.
Alabama—B. L. Wyman, Tuscaloosa.
New Mexico—R. Bailey, Las Vegas.
Florida—K. A. Lancaster, Gainesville.
Indiana—J. H. Hibbard, Richmond.
Louisiana—R. Matas, New Orleans.
Missouri—Dr. Dalton, St. Louis.
Michigan—Geo. E. Ramsey, Lansing.
Pennsylvania—Frank Woodbury, Philadelphia.

Rhode Island—Wm. J. Burge, Pawtucket.
New Hampshire—J. W. Parsons, Portsmouth.
Massachusetts—S. J. Belt, Boston.
Virginia—L. Ashton, Falmouth.
Ohio—H. J. Herrick, Cleveland.
Wisconsin—J. T. Reeve, Appleton.
California—J. G. Terryl, Sacramento.
Texas—R. W. Park, Waco.
Colorado—M. H. Sears, Leadville.

The report of the Committee on Nominations was received and adopted. The Secretary announced the nominations of the following officers of sections.

Section of Diseases of Children—F. E. Waxham, Chicago, Chairman, and W. B. Lawrence of Batesville, Ark., Secretary.

Section on Oral and Dental Surgery—J. Taft, of Cincinnati, Chairman, and E. E. Talbot, of Chicago, Secretary.

Section on State Medicine—H. B. Baker, of Lansing, Mich., Chairman, S. T. Armstrong, of Memphis, Tenn., Secretary.

Section on Practice of Medicine, Materia Medica and Physiology—A. B. Palmer, Ann Arbor, Mich., Chairman, and N. S. Davis, Jr., Chicago, Secretary.

Section on Obstetrics and Diseases of Women—Eli Van De Warker, Syracuse, N. Y., Chairman, and E. W. Cushing, Boston, Secretary.

N. S. Davis gave notice that the Judiciary Council would meet at 9 o'clock at the Tremont House on Friday morning.

When the Section on Dermatology was called J. V. Shoemaker, of Philadelphia, offered his resignation. Various candidates were announced, but it was decided out of order and was referred to the section for new election. Dr. N. S. Davis said the adoption of the new amendments of the constitution made certain new machinery necessary, and among other things, the members from each state should meet and appoint two members to constitute a general committee, one to serve one year and one for two years, and this must be done to-day in order that the secretaries might report same to the association to-morrow. Dr. Bishop, of Pennsylvania, asked for information as to how it was that on yesterday the matter was spoken of as amendments to the by-laws, and to-day they appear as amendments to the constitution. He was in favor of the amendments, but did not favor the means used to carry them.

Dr. Davis replied that the report dealt, first of all, with amendments to the constitution, and after that with amendments to the by-laws, which had been distinctly stated in the report.

The President stating there being evidently a great deal of dissatisfaction concerning the report, and he desiring above all things to do right, he would decide that the amendments to the constitution would not be adopted, but laid over for a year, and the amendments to the by-laws would be adopted and go into effect at once.

Dr. Roberts, Tennessee, moved any further action in regard to the next meeting of the Association be deferred until May, 1888. Dr. Davis seconded the motion, and offered an amendment to the amendment to the by-laws, that the nominating committee give names of three persons to deliver addresses to the association next year in accordance with the new by-laws. After much confusion the matter was adopted.

Geo. H. Rohe, secretary of the Rush Monument committee, read the report, from which it appears that $389.00 had been collected, and $143.08 expended for printing and the like.

The report was accepted and referred to a committee consisting of Drs. Grissom, Garcelon and Palmer for auditing.

Dr. Ranney, of Michigan, stated at the last meeting of his State Society $100 was appropriated for this monument.

Dr. Keller, of Arkansas, chairman of the committee on cremation, was not present, and his report was read by Dr. Morris, of Baltimore. The report was as follows:

No facts of a practical character in addition to those so forcibly presented by the former committee have come to our notice during the year. A report made to the American Public Health Association at Toronto, last October, largely embodies the views of the committee. In that report it is stated that it is only in the case of sudden and violent symptoms of disease or a great epidemic that the failure of the ordinary modes of burial can be realized or properly brought to the notice of the people; that as long as such outbreaks do not occur no particular attention is given to the matter by the profession or the laity; that, inasmuch as cremation has not met with popular acceptance, a modified form of cremation called by Liebeg cremacaucis might be adopted. This looks to the adoption of municipal and state laws compelling the use of destructive agents to bring about the rapid disintegration of the dead body. Caustic, lime, or chloride of zinc are especially adapted to this office. This process of immediate destruction of the dead body is particularly desirable in cases of persons dying of zymotic diseases. The burial of persons dying of these diseases should be placed by law in the hands of the health authorities. The old-fashioned triple coffin and the vault should be entirely discarded. Earth-to-earth burial should, as far as possible, be encouraged. As our cities increase, as our populations thicken, the evils of our present mode of burial will increase. In the

end it will be found that cremation is the truest, safest means of escape from the evils incident to the decomposition of the dead. The committee recommend the adoption of the following:

"Resolved, That it is the judgment of the American Medical Association that the burial of all persons dying of zymotic diseases should be placed by law under the control of the health authorities, and that in all such cases of disease chemical agents should be used by such authorities to bring about a rapid disintegration of the dead body."

Referred to the Committee on State Medicine.

Dr. Gaston introduced resolutions requesting the President to appoint additional physicians upon the yellow fever commission.

Dr. Rohe opposed the motion, but it was finally adopted.

The first paper read was the report of the Chairman of the Section on Obstetrics and Diseases of Women by F. M. Johnson, of Missouri.

Dr. Geo. H. Rohe, Chairman of the Section on State Medicine, read his paper on "Recent Advances in Preventive Medicine."

Dr. G. Knox, of Chicago, Chairman of the Section on Diseases of Children, read an address on "Diathesis and Disease in Early Life."

The report of the Treasurer was then read, showing the receipts during the past year had been $21,723.22, and expenditures $20,319.45, leaving a balance of $1,403.77.

The report was received and placed on file. It was moved and carried that the Society subscribe $10 for an Index Medicus.

The Librarian's report was received and adopted.

After considerable discussion the Association appropriated $1,000 for the International Medical Congress.

On motion the Society adjourned.

SECTION ON DISEASES OF WOMEN AND CHILDREN.

Dr. H. Landis Getz, of Marshalltown, Iowa, read a paper on "Diphtheria." The author, stated that while this was a subject which had often been discussed by those having experience with the disease, many others had attempted to discuss it who had only had experience with "Ulcerated Tonsilitis," or what could be called "Homæopathic Diphtheria."

Admitting the disease to be of the zymotic class, highly infectious, slightly contagious, the chief early symptoms of which are malaise of a few hours' duration, with or without chills, followed by a slight fever. There is seldom vomiting or convulsions at this stage and the local symptoms are so slightly painful or inconvenient as to cause the inexperienced to overlook the real trouble.

Physicians are often called to determine the reason for not feeling well as late as twenty-four hours after the membrane formation has set in, which he believes is always found to exist as early as any noticeable fever. The severity of the attack cannot be usually discovered by the constitutional symptoms found to exist during the first thirty-six hours, but is determined alone by the soil in which it develops, the blood and other elements in some systems affording barren soil which renders them proof against constitutional contamination, while in others it is fertile, and becomes rapidly saturated unless active measures are taken to destroy the germs of disease.

Consequently two classes of remedies are required—germicides and fortifiers. The former may be applied locally and termed direct or indirect; the indirect so altering the character of the blood that the germs perish on reaching it.

Fortifiers are: 1st. Such remedies as place the tissues in such condition as to prevent the lodgment of the disease.

2d. The second class of germicides are used.

3d. Remedies, surroundings and elements which tend to strengthen the blood and system, rendering it a nearly barren soil for the disease.

As the disease is a rapid one, terminating usually in four or six days, the treatment must be prompt and thorough.

There can be little doubt concerning the seat of disease, and, if not constitutional at the outset, becomes so, and the treatment resolves itself into local and constitutional.

If treatment is commenced within twelve hours from the commencement of the formation there should be no fatal results; if twenty hours you must expect to lose a patient occasionally, but if twenty-four hours have elapsed you must expect many fatal results.

The malignity of the disease depends more on the quantity than the quality of the germs and in prevention of their development lies the secret of success in treatment.

Owing to the mildness of the early symptoms it becomes the duty of the physician to examine carefully when a patient has been exposed to diphtheria, or if there is any slight trouble in the throat whether patient has been exposed or not. In difficulties resulting from cold the local symptoms in the way of pain will call the attention to the organ.

There is much diversity of opinion as to whether membranous croup and croupal diphtheria are not the same disease, but, properly

there is no such disease as diphtheritic croup (as croupal diphtheria is sometimes called), but it is diphtheria of a croup type involving an inflammatory condition and exudation of the larynx. The author gave a table showing that during a diphtheria epidemic in his city in 1886 there were 41 deaths (20 male and 21 female) out of something over one hundred cases reported, about one-third of the number being school children. The epidemic abated without any apparent changes in hygienic surroundings, water, etc., but the author thinks a factor for development of the disease exists in filth, and that, connected with certain atmospheric influences and tangible impurities, develops the disease.

The question of what remedies are best adapted in the way of drugs was answered—quinine and tinc. chlor. of iron. They are not new, but have not until recently been given the merit they deserve. In diphtheria the patient should, if an adult, have for first dose of quinine fifteen or twenty grains, subsequently 10 grains every 6 hours during the first 36 or 48 hours; after that enough to continue a slight ringing in the ears, care being taken to not overdose.

Tincture of iron may be used as a direct germicide and constitutionally as a fortifier by preserving the purity of the blood. It can be used as a local application varying in strength from one part of iron to three of glycerine and so on to full strength as the case requires. Applications should be made by physician personally, when possible, twice or three times in twenty-four hours. Twenty drops of the muriated tincture should be given adult in teaspoon of water every two hours as long as the stomach will stand it; if stomach becomes irritable lengthen the intervals. Hot applications are thought injurious, causing more rapid development of germs. Stimulants may be given when necessary. Ice may be used in the mouth. The main feature in the treatment should be even remembered by the physician, that to insure success, medicines, stimulants and food must be given on the hour and all local applications made by the physician himself.

Papers on the following subjects were read, in addition to the above:

"New Method of Treating Congenital Phymosis." By W. S. Stewart, Philadelphia, Pa.

"Intubation of the Larynx with Inferences from one hundred and thirty-three Cases." By F. E. Waxham.

SECTION ON PRACTICE OF MEDICINE.

Dr. G. W. McCaskey of Ft. Wayne, Ind., read a paper on "A New Method of Intra-Pulmonary Medication" with remarks on its use for pneumatic treatment.

The author first elaborately reviewed the evidence tending to prove that medicinal agents can be introduced into the air cells with the inspired air, and then proceeded to discuss the question under what forms and conditions can various medical agents be introduced in such way as to insure their influence on the deep bronchial structures.

He was not in favor of powders, gases or sprays for introducing such medicinal agents. He relies on saturated vapors temperature 158°F., or in exceptional cases, a somewhat lower temperature. The air saturated at this temperature is about one-third vapor, and with a comparatively cool respiration the lung reduces the temperature to 113°F., and about 69 per cent. of its deposit would be vapor.

The author uses a special apparatus which was exhibited to the Section, and consists of a double walled chamber, capacity one cubic foot, the hot air of which can be saturated with the vapor of any soluble agent. Expiration is carried on continuously by a combination of valves; the patient inspiring from the chamber and expiring into the air of the room.

He uses a wet and dry bulb thermometer to determine when saturation is complete, and also to lower the maintenance of uniform temperature. Its use with the pneumatic cabinet the author believes to be of great advantage. He has had considerable experience in the treatment of bronchitis and phthisis and, apparently, has had more gratifying results than are usually obtained with the pneumatic cabinet alone.

The following papers were also read and discussed:

"A Convenient and Practical Method of Administering Burgeon's Treatment." By Byron H. Daggett, Buffalo, N. Y.

"New form of Apparatus for the Administration of Gaseous Enemata." By J. H. Kellogg, Battle Creek, Mich.

"Geranium Maculatum." By John V. Shoemaker, Philadelphia.

"Etiology of Typhoid Fever as Observed in Country Practice." By L. N. Davis, Farmland, Ind.

BUSINESS IN THE OTHER SECTIONS.

The following programme of papers was carried out at the meetings of the various sections:

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

"Intra-Uterine Therapeutics." By W. S. Caldwell, Freeport, Ill.

"Cystitis in the Female." By H. O. Marcy, Boston, Mass.

"Lithiasis in Pregnancy." By J. E. Kelley, New York, N. Y.

"Erosions vice Ulcerations of the Vagina. Portion and their Relation to Laceration of the Cervix, with Practical Hints when not to Perform Emmet's Operation." By John A. Miller, San Francisco, Cal.

"Sudden Death in Labor and Childbed." By Fayette Dunlap, Danville, Ky.

SECTION ON ANATOMY AND SURGERY.

"Laparotomy for Penetrating Wounds of the Abdomen." By T. A. McGraw, Detroit. (A lengthy abstract of this paper appears elsewhere.)

"Injuries of the Abdomen and their Proper Treatment." By N. B. Carson, St. Louis.

"Pathology, Diagnosis and Treatment of the Appendix Vermiformis." By J. McF. Gaston, Atlanta, Ga.

"Calculi in the Appendix Vermiformis." By R. H. Reed, Mansfield, Ohio.

"New Method of Testing the Relative Value of Certain Antiseptics, Disinfectants and Germicides employed in the treatment of Wounds and Syphilis." By Jos. Jones, New Orleans.

"Wound Dressing: Some Notions Accepted and Some under Discussion." By G. E. Stubbs, Philadelphia, Pa.

SECTION ON OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

"Evulsion as a means for the Radical Cure of Pterygium." By J. W. Wright, Columbus, Ohio.

"Function of the Oblique Muscles in Certain Cases of Astigmatism." By G. C. Savage, Nashville, Tenn.

"Effects of Obliquity of the Correcting Lens to the Visual Axis." By Edward Jackson, Philadelphia, Pa.

"A New Form of Facial Frame." By Edward Jackson.

"Suppurative Inflammation of the Antrum of Heighmore." By E Fletcher Ingals, Chicago.

"Treatment of Hay Fever," and "Treatment of Chronic Suppurative Inflammation of the Middle Ear." By Seth S. Bishop, Chicago.

SECTION ON ORAL AND DENTAL SURGERY.

"Sponge-Grafting." By W. H. Atkinson.

SECTION ON STATE MEDICINE.

"Scientific Collective Investigation of Diseases." By H. B. Baker, Lansing, Mich.

"The Chemistry and Physiological Action of Tyrotoxicon." By V. C. Vaughn.

"An Inquiry as to the Mortality of Immigrants at United States Ports." By S. T. Armstrong, Memphis, Tenn.

"The Necessity for Inspection of Food Animals." By Dr. C. H. Horsch.

"Hygiene of Infancy and Childhood." By Dr. T. B. Greenley.

"Individual Hygiene of a Municipal Police Force." By Dr. G. Homan, St. Louis.

SECTION ON MEDICAL JURISPRUDENCE.

"The Medical Jurisprudence of Mental and Nervous Diseases." By S. V. Clevenger, Chicago.

"Paralytic Conditions in Relation to Testamentary Capacity." By E. C. Spitzka, New York.

"Report on the Present State of Our Knowledge concerning Concussion from Railway Accidents." By N. E. Brill, New York.

"A Claim to the Priority in the Determination of the Chemical and Microscopic Changes of the Blood in various forms of Malarial Paroxysmal Fever and the Application of the Results of these Investigations to Medical Diagnosis and Medical Jurisprudence." By Joseph Jones, New Orleans.

"Micrometric Measurement of Blood Corpuscles in Medico-Legal Cases." By Dr. Marshall D. Ewell, Chicago.

FRIDAY MORNING'S SESSION.

The Association was called to order at 10:30 o'clock. President Gregory in the chair.

Prayer was offered by the Rev. W. H. Vibbert, D.D.

The report of the Committee of Arrangements was read by the Chairman, Dr. Smith.

The Nominating Committee, through Dr. Brodie, reported that R. Beverly Cole, of San Francisco, had been selected to deliver an address on "General Medicine" at the next meeting; E. N. Moore, of Rochester, N. Y., to deliver an address on "General Surgery," and J. L. Colell, of Virginia, to deliver an address on "Public Medicine."

The following committee was appointed to inform the gentlemen of their selection, and, if necessary, fill vacancies: J. N. Toner, of Washington; Eugene Grissom, of Raleigh, N. C., and Dr. Colvin, of Clyde, N. Y.

Dr. J. B. Hamilton introduced the following:

WHEREAS, The President of the United States has appointed George M. Sternberg, surgeon of the United States army, to proceed to Mexico and Brazil for the purpose of investigating the methods there practiced for the prevention of yellow fever by inoculation; and

WHEREAS, This report will be accompanied by photo-micrographic illustrations of the appearances of all the principal organs of the body affected by yellow fever; therefore, be it

Resolved, That the Senate and House of Representatives be requested to cause such number of copies of Dr. Sternberg's report to be printed as may be needed by the profession of medicine of the United States. Be it further

Resolved, That the resolution on this subject passed yesterday be rescinded.

Dr. Wilson, of Boston, seconded the resolution.

Dr. Gaston was opposed to the resolution, on the ground that the action taken on the resolution of the preceding day was final, the motion to reconsider having failed. He thought it impossible for the Association to rescind the action of yesterday.

Dr. Hamilton contended this was a new resolution. He did not propose rescinding any resolution; but, if in the body of the resolution presented there is anything that rescinds the action taken previously, it is clearly in order.

Upon request the resolution was read by the Secretary.

Dr. Rohe, of Baltimore, favored the passing of the resolution, saying that President Cleveland had already done all that could be asked of him. Dr. Sternberg had been appointed and was already at work. It would be ridiculous to allow the resolution of yesterday to stand as the sentiments of the Association. He hoped the Association would pass Dr. Hamilton's resolution in such a manner that there could be no doubt as to the opinion of the Association.

Dr. Gaston moved, and it was seconded, that the resolution be separated.

There was call for the previous question, and it was put, and the resolution of Dr. Hamilton carried by a large majority.

Dr. J. S. Marshall, Chairman of the Section on Oral and Dental Surgery, read his report, which was referred to the Committee on Publication.

Dr. J. N. Quimby, Chairman of the Section on Medical Jurisprudence, read his report, which was referred to the Committee on Publication.

Dr. J. N. Beel, of New York, moved that committees referred to in Dr. Quimby's report be appointed.

The following gentlemen were named as a Committee on Criminality of Fœticide and Measures for its Prevention: J. N. Quimby, of New York; W. B. Atkinson, of Pennsylvania, and W. H. Byford, of Illinois.

Duties Commonly Exercised by Coroners: H. O. Marcy, Boston, Mass.; J. H. Burge, New York; W. W. Dawson, Ohio.

J. M. Toner, of Washington, read a brief report of the Committee on Necrology, which proposed to get out a necrological report for the last ten years.

The committee to audit the report of the Trustees of the Journal submitted their report, finding everything correct.

Dr. N. S. Davis presented the report of the Standing Committee on Meteorological Conditions and their Relations to the Prevalence of Disease; also concerning the Collective Investigation of Disease in Coöperation with the Committee of the British Medical Association. He reported progress, and, on motion, the committee was continued.

On motion, the report of the Chairman of the Section on Surgery and Anatomy was referred for publication.

Dr. N. S. Davis introduced the following resolution:

Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education and a term of professional study equal to the best class of the medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in general medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulations as other members.

In offering the resolution, he said he wished to explain the meaning of the resolution. The first object in the resolution is to relieve a degree of embarrassment that exists in the dental profession. Dental and oral surgery is as much a part of the field of medicine and surgery as ophthalmology or otology or any other ogology. Our mouths and teeth are as important as any other part of our organization, and are used a little more than any other part. The embarrassment arises in this respect: Just who and by what line those engaged in this department shall be recognized as members of the regular profession. Now it is proposed to make a line and draw it where this resolution says. There is a more far-reaching and more valuable underlying object. If this resolution passes this body it will raise the requirements of all the dental schools in the country so that they can be recognized as members of the regular profession of medicine.

The resolution was unanimously carried.

Dr. Davis then offered the following, which, after some debate, was adopted:

Resolved, That the committee of arrangements are hereby directed at each annual meeting of the Association to so arrange the programmes regarding entertainments and receptions that the evening of the third day be reserved for a regular annual dinner under the following general regulations: The chief registration officer shall provide for each registration table a paper headed,

"Annual Dinners of the American Medical Association," with two columns for names, one headed tickets without wines or liquors at a specified sum; the other, tickets with wines, etc., at a specified sum; that each member when registering can have the opportunity to take a ticket for the dinner if he desires it, and can be entirely free to enjoy the dinner not only without using wines, but, also, without being required to assist in paying for that drank by others; while those who desire the addition of wines will enjoy the same liberty. It shall be the duty of the committee of arrangements to select a proper place for the dinner, to ascertain the cost per plate on the plan already indicated, that the price paid for the tickets will pay the entire cost of the dinner, leaving no part to be paid either by the local profession or by the treasurer of the Association.

Dr. Wilson, of Boston, moved that an appropriation of $300 be given to the permanent Secretary. Dr. Davis objected to the motion, saying that the expenses of the Secretary were paid, and that every dollar that could be raised should be put into the Journal. The first year he had not a dollar, and since then it has been less than $1000 per year. He offered the following resolution as an amendment to the original resolution:

WHEREAS, It has been the unwavering policy of the Trustees for the publication of the Journal to enlarge and increase the value of the Journal as fast as the income of the Association will permit; therefore,

Resolved, That said Board of Trustees be a Standing Committee on Finance, to whom all propositions for the appropriation of money made hereafter shall be referred and reported upon before final action on the same by the Association.

Dr. Quimby—I rise to a point of order. There is a resolution before the house, and you cannot move a substitute.

Dr. Davis replied that his resolution was an amendment to the original resolution.

The motion was put on the amendment and carried. The original resolution failed.

Dr. J. N. Toner offered the following resolution as an amendment to the by-laws:

Resolved, That hereafter the Presidents of all such State and Territorial medical societies as are entitled to representation in the American Medical Association be recognized as Honorary Vice-Presidents of this body and entitled to seats upon the platform.

Dr. Jennings—It's a very fine thing in its appearance, but it would be rather over-doing the thing. While we honor the officers of the State associations, they are honored as much as they can be by becoming members of the American Medical Association. I can see no reason why the platform should be filled up with the officers of State societies. I think we have enough speakers on the platform now, for most of the business is transacted there.

Dr. Colvin—That might be very well for every State in the Union except New York. I should dislike very much to see the President of the New York State Medical Society on the platform.

Dr. Roberts moved to lay the resolution on the table. Carried.

Dr. Roberts moved that Dr. Brodie be made a committee of one to return thanks to those to whom thanks were due. Carried.

Dr. E. A. Wood introduced the following resolution:

Resolved, That a special committee of three be appointed to report on the subject of Dietetics at the next annual meeting.

Carried; and the following were named as the committee: Drs. Wood, Whittaker, and Woodbury.

The President appointed the following committee to draw up a form of law to secure uniformity in medical legislation, and to report to the Section on State Medicine next year: P. H. Millard, H. A. Johnson, R. H. Plummer, C. B. Belt, and C. W. Dullen.

Dr. T. E. Woodbridge introduced the following:

Resolved, That the President of this Association be requested to appoint a committee of three, whose duty it shall be to investigate thoroughly the whole subject of health resorts and mineral springs and report on their comparative value to this Association.

It was referred to the Section on State Medicine.

Dr. Brodie—It is always a good thing to be thankful after you have received something that you ought to be thankful for. I think we ought to be thankful for the beautiful Chicago weather we have had, and to the Committee of Arrangements, and especially to the Committee on Transportation for influencing the railroads to let us return on one-third fare. I think we should be especially thankful to THE CHICAGO MEDICAL JOURNAL AND EXAMINER for the full and complete reports we have had each morning. Of course we should be thankful to the Secretary, for he gets nothing but thanks. But then he is a rich man, any way—a pretty good fellow, whose expenses are all paid, and he makes out his own expense account. (Great laughter.) Finally, our especial thanks are due to our worthy President for the exceeding courtesy with which he has ruled over our deliberations. Gentlemen, we are thankful for everything.

President Gregory, in adjourning the meeting, said: "My work is finished—I wish it were done better. But it has been done as best I could. There is nothing remaining for me to do but to say, Thank you, good-bye, God bless you. I would gladly intro-

duce to you your new President. But this is out of the question. I learn that he is a man—that he possesses those qualifications which will be in keeping with the men who have gone before him in this office. He is a man of culture, and endowed with those qualities of mind and heart that will insure success. I remember, thirteen months ago, the only man I envied was Dr. Brodie, the retiring President. I am proud to have been President, but I am glad that it is finished. It only remains for me, gentlemen, to add that you have honored me; you have trusted me; that you have been most deferential and indulgent, and if my heart had language it would gush. I must come to a close by offering my heartfelt thanks. The Society is adjourned to the second Tuesday in May, 1888."

CHICAGO GYNÆCOLOGICAL SOCIETY.

REGULAR MEETING, *Friday, April 15, 1887.*

I.—H. T. BYFORD.—1. Curettes.
2. Round Ligaments from a Case of Alexander's operation.

II.—EARLE.—Cystic Sarcoma of Right Ovary.

III.—FENGER.—1. Proliferating Cystoma with Partial Intraligamentous Development.
2. A new Colpoplastic Operation for Defect of the Vagina.
3. Antisepsis in Abdominal Operations. Synopsis of a Series of Bacteriological Studies.

IV.—CALDWELL.—Enlarged Thyroid or Goitre a Cause of Transverse Presentation.

V.—TAIT.—Reply to Dr. M. Sänger.

THE PRESIDENT, CHARLES WARRINGTON EARLE, M. D., in the chair.

I.—DR. H. T. BYFORD.

1. Curettes.

I want to show three curettes, which I have had made to answer a specific purpose not as well met by any other instrument. The ordinary method of removing the retained placenta in abortion is by the finger when possible. I have done this quite often, and have devised this largest curette to take the place of the finger. It is rounded in all directions on the end, has a spoon-shaped opening, is strong and yet flexible in the shank. It can be introduced without much dilatation of the os, and can be bent so as not to require the cervix to be drawn to the vaginal orifice. The shape gives it the advantage of being a sort of a feeler, incapable of doing great harm even under strong pressure. When used as a scoop it can easily be made to scratch off tissue that is not solid, that does not belong to the uterus, but it is not sharp enough to cut the uterine substance itself. The next, of medium size, is used as an ordinary uterine curette, which, although dull, is very strong, and capable of removing softened or degenerated mucous membrane. The firmness and thickness of this curette makes it different in action from the dull wire curette, which cannot be used with such force, or if used with force would be more apt to bruise the tissues. This smallest size is both for diagnosis and uterine curettement, and has the same characteristics; it requires scarcely any dilatation of the uterus, and will not cut healthy uterine tissue. I have left it unpolished on the end for the purpose of making it answer better as a palpator.

DR. JAGGARD: I do not think Dr. Byford's curettes differ from Mundé's in any essential particular.

DR. BYFORD: One advantage is that, being thicker and rounder on the end, it is not as capable of doing harm. Mine is scooped out in the shape of a spoon, and catches hold of particles better; I think it is more like Mundé's than any other. I have left the end unpolished for the purpose of a better palpation of soft substances. It is nickle-plated, although not polished on the end. I think the smaller one can be used with considerable success in feeling. I have used it at the office for the diagnosis between malignant growths and interstitial fibroids. By the amount of pressure we can use we get a knowledge of the bleeding surface, whether friable or solid. We can usually get some of the malignant growth or of the mucous polypi, but obtain nothing but blood from the intestitial fibroid.

2. Round Ligaments From a Case of Alexander's Operation.

I have here a specimen of the round ligaments, removed by the Alexander operation only a few hours ago. They are interesting on account of the extreme attenuation, which may account for some cases of failure in this operation. They are almost as thin as wrapping cords, and will give quite an idea of what some of these ligaments are after they are stripped of their fibrous coat and drawn out. In one operation which I performed there was just such a condition, and after a long, careful attempt to make them run, I broke one of them, and almost lost it. The other one I could not get entirely loose and only shortened it three-quarters of an inch. I met with one ligament twice the normal diameter, or over four times the diameter of this one; the opposite ligament in that case was about as thin as this one.

I have performed Alexander's operation six times.

II.—THE PRESIDENT.

Cystic Sarcoma of Right Ovary.

I have an abdominal tumor to exhibit. As the history of the growth of the tumor is interesting—as also an operation for hernia which was performed upon the patient—it gives me great pleasure to read a letter from Dr. J. W. LaGrange, of Marion, Iowa, in whose charge she was for some years. He writes, "I have attended Mrs. D——since 1882. During that time, she has had several attacks of nausea, vomiting and intense pain in the bowels and stomach, these symptoms usually subsiding in thirty-six to forty-eight hours. In August, 1884, I was called to see her and found her suffering from the usual symptoms of gastric catarrh, but the malady did not yield to the usual treatment and on the third or fourth day I found that she had an old hernia, that had come down, from the excessive vomiting and retching. The hernia was femoral and about the size of a small orange. Taxis failed to reduce it, even when the patient was under the influence of an anæsthetic. We advised an operation, but the patient refused, saying that by the use of warm applications it would go back itself as it had done on different occasions. The next day hot applications and taxis failed to reduce it, and the patient began to have stercoraceous vomiting. We urged the necessity of an operation, the danger of delay, but the patient would not give her consent. So the fifth and sixth days passed, during which the symptoms were even more alarming, but the patient would not yield to an operation. The seventh day the patient gave her consent, and while we were making preparations she had a fainting spell and the intestine slipped back. Then she exclaimed, 'I told you so.' She made an excellent recovery; a truss was fitted and she remained quite well up to November 21, 1884, when I was sent for again and found the hernia down. Taxis under the influence of an anaesthetic failed to reduce it; and hot applications were tried. Past experience made us certain of this fact that the gut on former occasions was not strangulated but incarcerated. So we delayed advising an operation until the fourth day, when the symptoms became so strongly marked that we again urged an operation, but the patient refused on the same grounds as before, and insisted that time and hot fomentations would cause it to go back. We waited, persisting in the local treatment, and every day urging the necessity of operating and the danger of delay, but were met by the old argument. The fourteenth day came and the patient was so weak and exhausted and the symptons were so alarming that she consented to the operation. After cutting through the skin and the fasciae, to our surprise the contents of the bowels began to pour out in large quantity. We experienced great difficulty in opening the hernial sac, the different coverings having become organized into one common mass, thickened and interspersed with blood vessels. When the gut was reached it was a small knuckle of intestine lying in the bottom of the thickened mass. It was quite black and slight pressure with the end of the finger caused it to slip back into the abdomen. To our surprise the patient rallied and in a few days was convalescing. Everything she ate or took into her stomach passed out of the artificial anus; and there was no discharge whatever of fecal matter from the natural channel. The wound around the artificial opening healed kindly and the patient gradually gained strength, and by December 1st was able to sit up. December 25th she had a movement of the bowels from the natural channel. The discharges of fecal matter from the artificial opening gradually grew less and the opening healed up entirely in one week from this time. The patient remained well until October 16, 1886, when she had typho-malarial fever. In my examination at this time, I discovered in the right inguinal region a hardness, tender on pressure, outlines well marked, and involving the tissues of the right inguinal region and extending over the hypogastric region to the median line. The patient stated that she noticed this hardness first about a month previous (September 15, 1886). She had not menstruated for two months; but previous to this time had always been regular and the flow seemed to be natural. Examination of the womb revealed a large tumor, tense to the touch, involving the fundus, also a smaller one about the size of a hen's egg, attached to the left side of the organ. The mouth of the womb pointed to the right of the pelvis, and the probe passed about one inch into the cavity of the womb. There was a slight watery discharge during the early weeks, but no odor. At this time I diagnosed the case as a fibroid with cellulitis, and prescribed hot fomentations and local application of iodine. She did not complain of much pain. In about a month her typhoid symptoms subsided and the hardness in the right side grew less, but the tumor continued to increase in size and the outline in the hypogastric region was well marked. About this time I called in consultation Dr. H. Ristine, of Cedar Rapids, Iowa. After a careful investigation of the case and a careful consideration of the rapid growth of the tumor, and general appearance of the patient, we diagnosed the case as fibroid sarcoma and gave a very unfavorable prognosis. Under tonic and stimulating treatment with pro-

per nourishment, her general health somewhat improved. Our treatment for the tumor was ergot by enema, with laudanum when needed to relieve the pain. Her chief distress was nausea and vomiting. During the latter part of my treatment there was a slight bloody discharge on two different occasions, which continued but a day or so, but there was no fetid smell. The growth did not increase as rapidly during the last month as when first noticed."

This lady came to Chicago about February 1, 1887, to consult Dr. W. H. Byford in regard to an operation. The malignant nature of the tumor being detected, it was not regarded justifiable to operate, and particular attention was paid to her nutrition and the relief of her pain, the details of which were left to me, as I lived in her immediate vicinity. She gradually failed, and finally died from inanition and exhaustion March 16th. Several convulsions took place during the last weeks of her life, probably from cerebral anæmia, and the apthæ, which completely filled her mouth, were most remarkable. The autopsy was performed by my brother, Dr. Frank Earle. After the abdomen was opened we looked carefully for the condition of the bowel as affected by the hernia. We found a fold of the intestine directly in front of the tumor, extending from the left obliquely to the hernial sac on the right, its omentum being intimately attached to the tumor. The lowest point of the intestinal loop was connected to the hernial sac by a small ligamentous band. The neck of the hernial sac was not at all closed, and the finger could easily be introduced to the depth of two inches. A part of the tumor had so grown that it pushed up the intestine, and probably kept it from descending into the sac. Posteriorly the growth was adherent to the bowels and imbeded in the pelvis. One of the ureters was largely dilated, probably from pressure of the tumor. Apart from its malignancy it would have been impossible to have removed it. Microscopically it was found to be in the main a cystic sarcoma, although there was a small fibroid at the fundus, which Drs. La Grange and Ristine had detected. The point of origin of the tumor was apparently the right ovary. The fundus was pressed to the left and anteflected.

To recapitulate: We had here a case that had been more or less an invalid for five years. Symptoms for four and a half years, referable to the stomach; repeated attacks of gastric catarrh with nausea, vomiting and pain; a hernia which had given great trouble; and finally, a rapidly growing tumor filling the abdomen, first noticed about six months previous to death, which seemed to be caused by inanition and exhaustion.

DISCUSSION.

DR. W. H. BYFORD: I have not heard the history of the case heretofore, as it has been given by the letter read this evening, but I arrived at the conclusion, when I saw her first, that it was a sarcomatous tumor, from the rapidity of its growth and the great emaciation of the patient, together with the discharges, which were a little different from a fibroid or any other kind of a tumor. I do not think it would be very disgraceful in me or anybody else, to acknowledge a good deal of ignorance about sarcomatous disease. Certainly our knowledge is not as definite and extensive upon this subject as upon several other malignant and benign diseases. I do not think that it would be worth while to enter upon the discussion of sarcoma at present.

DR. DANIEL T. NELSON: I have but a single suggestion, and am hardly prepared to make it satisfactorily: A sarcomatous growth like a cancer, is likely soon to become fused with adjacent tissues. But, if it can be discovered early enough and removed by enucleation, it seems to me there is a possible hope of permanent recovery. The removal of the whole of the disease, as in any malignant disease, is the thing to be aimed at, and I believe there is a time in cancer and in sarcoma when it can all be removed. We do not generally find the patient at such a time, yet I believe that in the future our means of diagnosis will be so much improved, and our skill so much increased, that we will be able to diagnose these cases much earlier, and remove the growth when the patient can be cured, and it is to urge the careful study of the diagnosis in these cases, and the question of early operation when they are diagnosed, that I have risen. It seems to me that in these two diseases, especially sarcoma, an early diagnosis is of importance, and if an operation is ever to be done it should be done early.

DR. C. T. PARKES: I do not think I shall have anything to say on the question of sarcomatous tumors. In the history of this case there is one rather interesting circumstance mentioned; that is, the recovery after the occurrence of sloughing of intestine from strangulated hernia. It is outside of the question of sarcoma, but goes to confirm my experience, that cases of strangulated hernia that have been allowed to remain for some time, with ensuing sloughing of the intestines, are not always fatal, nor do they always require subsequent operative procedures. I have seen two cases of strangulated hernia that were supposed to be abscesses, but when the parts were operated upon, and the abscess cavity exposed, at the bottom of it were found sloughing intestines, and both of these cases, artificial anus in each, did

well and have recovered. The restoration was apparently complete, and up to the present time they have suffered no difficulty from the condition.

III.—Dr. Christian Fenger.

1.—*Proliferating Cystoma with Partial Intraligamentous Development.*

In addition to my remarks on parovarian cysts, at a former meeting of this society, I wish to present a specimen of a proliferating cystoma with partial intraligamentous or retroperitoneal development. It was taken from a woman 48 years old, operated upon March 22, 1887, in the Emergency Hospital. The photographs I pass around will show that the tumor was of enormous size. The abdomen measured at the umbilicus 132 centimeters in circumference, and from the xiphoid process to the symphysis pubis 63 centimeters: When, after tapping, the cyst was partially brought out of the wound, I found a very peculiar formation attached to the side of the cyst near the abdominal end of the enlarged Fallopian tube. As will be seen in the specimen passed around, it consists of a long, narrow cylindrical sac, 21 centimetres long and 4 centimetres in diameter. Its wall is almost transparent and half filled with a clear fluid. I have not been able to find described anywhere in the literature a similar appendix to any ovarian cyst. It seems to me likely to a reopened and dilated Morgagnian hydatid, the remnant of the terminal portion of Müller's duct. The retroperitoneal portion of the cystoma was enucleated as usual, leaving the large wound cavity with insufficient peritoneal covering. In this cavity Mikulicz's drain was used with a glass tube through its center. The last of the drain was removed on the 18th day, and the wound finally closed shortly afterward.

DISCUSSION.

Dr. W. H. Byford: I would like to make a few remarks on the subject of this specimen, particularly with reference to the manner of treating parovarian tumors. I suppose there are very few instances of parovarian tumors in which they become pedunculated. We do infrequently meet with instances where there is a fair pedicle, but they are exceptions to the rule, which is that they rise from within the broad ligament and often carry up with them a layer of fibrous tissue. And instead of being pedunculated, they commonly lie in a cup-shaped excavation in the broad ligament, extending down into the ligament some distance. There is therefore generally no way of getting rid of them except by enucleation. As was stated by Dr. Fenger at our last meeting, the general subject of enucleation was probably taught to Americans, at least, by Dr. Miner, o Buffalo. But at the time Dr. Miner wrote upon the subject we did not possess the same knowledge of the difference between broad ligament tumors and ovarian tumors that we now have. At that time we frequently confounded ovarian tumors with tumors of the broad ligament, and Dr. Miner did not confine himself to the consid eration of this sort of tumor, but believed he was always enucleating a cystoma of the ovary when he removed a cyst from the abdominal cavity. We are now disposed to believe that most if not all his cases (he did not enucleate many) belonged to the variety of parovarian cysts. It is with the view of pointing out a few things in connection with the enucleation that I am now speaking. In practicing enucleation, as we have done heretofore, we make every effort, without much method, to get rid of the fibrous covering by tearing it off, without any special reference to the exact manner in which it is done. I have met with a few of these tumors in the last three or four years which have caused me to think differently on this subject, and made me to look more narrowly into the matter of enucleating them. About four years ago I was called upon to operate in a case of this kind in which there was considerable inflammation as well as a very thick coat of fibrous substance brought up with the upper layer of the broad ligament, enveloping the lower third of the tumor quite closely. In operating I found that by careful manipulation I could get out the cyst proper from the capsule without tearing down the side of it. The manipulation consisted in pushing the fingers down deep between the capsule and the cyst until they went below the tumor on all sides and in the center, when I found that I could get the sac entirely out, and in that instance succeeded in removing it without at all tearing down the sides of the enveloping capsule. I could then bring the edges of this cut-shaped stump to the external wound and stitch them to it. By means of a drainage tube in this cavity passing though the external wound I was able to drain off the fluid, while the whole raw surface of the hollow stump was excluded from the paritoneal cavity. I have done that operation myself now three times, and have seen it performed twice. Two weeks ago last Sunday I saw an operation at the Wonan's Hospital, performed by Dr. Henry T. Byford, for removal of one of these broad ligament tumors. After emptying the sac with the trocar, so that it was relaxed, he lifted it up as high as he could with Nélaton's forceps, then took the knife and lightly cut through the fibrous covering until he could get his fingers through it, when it was enucleated as above described. The inside of

this cup-shaped pedicle or stump was entirely excluded from the peritoneal cavity, its edges were brought up to and included in the external wound and then a drainage tube introduced. This method of operating is always satisfactory, as, by making a perfectly close cup, the sides do not permit of the blood or serum getting into the peritoneal cavity. In two cases we found that no discharge came through the tube, hence it is probably not always necessary to drain. A remarkable thing in connection with the operations is that there is very little bleeding. In Dr. H. T. Byford's case the patient is convalescent, almost ready to go home; she lost less than four ounces of blood in the whole operation. There was no ligature placed upon any of the vessels. Dr. Fenger spoke of the operation being somewhat dangerous on account of the intestines. In this case the cæcum and the vermiform process were plainly visible upon the side of the tumor, but the fingers hulled out the capsule upon which they lay and left them perfectly free. I am convinced that these tumors can be cured as a general rule much more easily than by enucleation. I have not tried the process upon large tumors, but in small ones I make an incision through the abdominal walls, evacuate the tumor and leave a drainage tube in the sac. In four instances I have seen them cured in this way. These cysts are so simple in structure and have so little vitality that it is only necessary to drain them. Even tapping or aspirating them is sometimes sufficient. No dangers have arisen during the convalescence, and I am in hopes that the treatment of parovarian tumors on further experience will be very much simplified. I fully believe that evacuation and drainage of large parovarian cysts would be quite as successful as in the smaller ones.

3.—*Antisepsis in Abdominal Operations; Synopsis of a Series of Bacteriological Studies.*

(Preliminary Note, by Christian Fenger and Bayard Holmes.)

[NOTE.—This paper appears in another part of this issue as an original contribution.—*Editor.*]

IV.—DR. CHARLES CALDWELL.

Enlarged Thyroid or Goitre a Cause of Transverse Presentation.

June 1st, 1884, Mr. G—— summoned me to attend his wife. On the way to his house he informed me that she was in labor; that a midwife was in attendance and had been for twenty-four hours; that his wife did not seem to be making any headway, but was becoming weak and exhausted, and the midwife was frightened, not knowing what was the cause of the delay or what to do.

Her condition upon my entrance was truly frightful. She was in the midst of a labor pain, pulling the midwife's hands, straining every muscle, her whole face cyanotic, and her eyes protruding as if they would escape from their sockets. Exhausted she fell back gasping for breath.

It required but a single glance to perceive that death threatened this poor woman from two sources, *i. e.*, asphyxia and rupture of the uterus.

Bimanual examination revealed the fœtus in a transverse presentation. The os was fully dilated and the membranes had ruptured. The mother had not felt the movements of the fœtus for several hours and its heart sounds could not be heard.

Podalic version was performed without delay, by Braxton-Hicks' method. The feet were brought down, and during the next labor pain the second stage was completed. The third stage consumed but a few minutes and the uterus contracted well. The fœtus was large, but showed no signs of life. The heart's action had probably ceased several hours before.

After visiting my patient for three succeeding days, during which time her pulse and temperature remained normal, I saw no more of her, but her husband, whom I met the following week, informed me that she got up the fourth day and attended to her usual household duties.

Oct. 16, 1885, I was called a second time to attend Mrs. G—— in labor, and as in the first instance, she had called a midwife, also as before, she had been under her tender care, or rather at her tender mercy, for twenty-four hours. Again the fœtus was in a transverse presentation with the right arm and prolapsed cord protruding from the vulvar orifice, for the membranes had ruptured. The cord was pulseless. The hand and arm were easily pushed up over the face and above the brim of the pelvis.

By combined manipulation, with the right hand in the vagina and the left over the abdomen, cephalic version was performed. The head was brought down into the first position and held there until by a strong labor pain it became engaged, when forceps were applied at the superior strait and the fœtus extracted during the next pain.

This fœtus was an unusually large one, and I regret it was never weighed. Dr. Jaggard, who utilized it for the cause of obstetric science, says it must have weighed nearly or quite 20 lbs. Her puerperium was normal as before, which means she left her bed the fourth day.

February 18, 1887, Mr. G——, for the third, and, I hope, the last time, summoned me and said his wife needed my services again; that

this time they had decided not to call a midwife first, but to send for me at once and give me a better opportunity to save the child's life. Examamination revealed a third case of transverse presentation. Os was fully dilated, but membranes unruptured. Through the membrane, by vagina, could be felt both the feet and hands. The head was to the right and breech to the left. Fœtus was in dorso-posterior position. The placenta could be easily felt through the abdominal walls, and was attached to the anterior wall of the uterus, near the fundus. By external manipulation, I attempted to perform cephalic version before the membranes ruptured. The amniotic fluid was small in quantity, and I failed. Deciding upon podalic version, the membranes were ruptured, and a fœtus weighing twelve pounds was delivered in a few minutes, but not without considerable muscular exertion on the mother's part as well as on my own.

As I brought down the feet with the right hand and pushed up the head with the left, the abdomen of the fœtus rotated anteriorly. As soon as the body was delivered, I clasped the thorax of the fœtus with the left hand to prevent inspiration and asphyxia. The arms were then brought down, and with the assistance of the nurse, who raised the child's body up over the mother's abdomen, I seized the fœtus by the occiput and delivered the after-coming head without forceps. The child gasped a few times, and then began to cry, to the delight of its mother. Placenta was soon expelled and the uterus contracted firmly and well.

Puerperium as in the two preceding cases.

The patient who furnishes me with my theme was born at Königsberg, Germany, in 1852; was married in 1873, and is the mother of ten children. The oldest four were born in Germany—the others in America, during the last nine years. Her first seven confinements were normal, and she was attended by a midwife. Seven years ago the left lobe of the thyroid gland began to enlarge during gestation, but caused neither pain nor dyspnœa. Three years ago, during her eighth pregnancy, the right lobe began to enlarge, and increased in size very rapidly, producing both pain and dyspnœa, compelling her to take a semi-recumbent position at night instead of a horizontal one. During the last three months of gestation she sat bolstered up in bed at night. This posture, which she was obliged to take whenever she sat down, during the day as well as the night, produced a continued pressure on the fundus of the uterus, changing its long axis from a vertical to an oblique or transverse direction. Of course, the long axis of the fœtus must coincide with that of the uterus, and the continued pressure on the breech or head, according to the end of the fœtal ovoid at the fundus, would force it into an oblique or transverse position, and also throw the lower end of the fœtus out of the pelvis and above its brim. The same position of the mother is maintained during labor as during the last three months of pregnancy, hence the fœtus remains in the same oblique or transverse position, and the lower end of the fœtal ovoid cannot descend below the pelvic brim.

It seems to me the above facts explain perfectly why the fœtus has been found in a transverse position, the three last confinements and never at a previous one.

In examining the obstetrical treatises at my command, I find no mention of enlarged thyroid as a cause of this presentation, but that it certainly is in this case I have not the least shadow of a doubt. The causes usually given are: Immature fœtus, contraction of pelvic brim, laxity of uterine muscles, excessive liquor amnii, twin pregnancies, etc., all of which can be excluded in this case.

The case has been quite interesting to me, for it is rare in my obstetric practice to meet with cases of transverse presentation, and I have *never* before seen it occur three times in succession in the same patient. I saw my patient last week, and find by measurement of the tumor at the largest point, that it has diminished more than an inch in its circumference in seven weeks, and that she can now sleep in bed with two pillows under her head. Dyspnœa is not alarming until the seventh month of pregnancy, but from that time until confinement it is excessive. This is hardly the place to discuss what mode of procedure should be followed in her case for her relief; and yet, as she is but thirty-five years old, it is very probable that she may become pregnant again, and possibly lose her life, if nothing is done to remove or at least reduce the size of the tumor, until it shall cease to be a source of such alarming dyspnœs.

I should be glad to hear the opinions of any of the Fellows who have had experience with this class of glandular tumors. From my own experience I should not be in favor of total extirpation, for I once saw a woman cross the river before the operation was completed.

Ligation of the superior and inferior thyroid arteries, partial resection, injections or electrolysis seem to offer better results, and are certainly much less dangerous.

DISCUSSION.

DR. D. T. NELSON: I have had one patient that this case reminds me of, in which no shoulder or other irregular presentation was the cause

of difficult labor, but a high promontory (and it seems to me with the experience I have had with abnormal presentations that a high promontory is a very common cause of mal-position), complicated by an enlarged thyroid, not to the extreme extent of the case reported, but such as to give the patient a great deal of inconvenience in the last months of pregnancy, and especially at the time of delivery. I have delivered her with instruments several times. The treatment I have adopted in her case for the enlarged thyroid, and with seeming benefit, has been the free use of ergot in the intervals between pregnancies. The gland will diminish greatly in size, at least in the intervals between pregnancies, as the pressure is taken off of the circulation. When she followed the treatment with some degree of faithfulness (she would not use the remedy with persistency), it seems to me that in two periods, when she did fairly well, continuing it for about two months, there was a more marked improvement than at any other time. I would suggest this to the Doctor, as I know of nothing else that is more likely to serve him, before he decides upon a surgical operation. In the acute enlargement of the thyroid, occurring in both sexes at puberty, though most frequently in the female, I have given ergot with excellent results, continuing it several months.

DR. C. T. PARKES: I would suggest, as to the treatment of this thyroid gland, that among the many methods I have seen adopted, the injection of a 5 per cent. solution of carbolic acid sometimes brings about a very rapid improvement, and decrease of the enlarged gland. An injection with a hypodermic syringe once or twice a week is not followed by any unpleasant reaction.

V.—MR. LAWSON TAIT. *Reply to Dr. M. Sænger*, 51, 7, The Crescent;

BIRMINGHAM, England, March 4, 1887.

To Charles Warrington Earle, M.D., President of the Chicago Gynæcological Society:

SIR: I have just read Dr. Sænger's reply to a letter which I sent to the Chicago Gynæcological Society, concerning Dr. Sænger's divisions and subdivisions of pyosalpinx.

Dr. Sænger seems a little wroth that I should have regarded these subdivisions as absurd, but I still continue to do so, and I am perfectly certain that the position which I take concerning them will be admitted before long to be a just and accurate one. However antagonistic that attitude may be to Dr. Sænger, it does not justify him in using the language which he does.

He says, for instance: "Lawson Tait's practical results are so good that they have raised his conceit to so high a degree that on pathological questions he assumes a certain infallibility which vents itself in numerous sallies and attacks upon others."

I trust this is not true. My numerous sallies and attacks are not induced by conceit on my own part, but by misrepresentations on the part of others. Dr. Sænger himself forms an example of that misrepresentation. He says that "Lawson Tait has asserted that menstruation does not depend upon the ovaries but upon the tubes." This is a direct misrepresentation. It is not I who have asserted that menstruation does not depend upon the ovaries, but Ritchie asserted it and proved it before I was born. Reeves Jackson, of Chicago, has sustained the proof, so have Balfour, Melassey and a dozen more, but the proof does not yet seem to have penetrated the German mind. I have sustained the proof by abundant clinical examples, and some of my clinical work has indicated that the tubes have a large influence upon the production of the phenomena of menstruation. This is all I have had to do with the matter, and Dr. Sænger has no right to be so ignorant as to indicate any misrepresentation of this kind when he assumes the position of a dogmatic instructor.

Dr. Sænger says that my statements are reckless, and he expresses this concerning the statement of Cæsarian Section having a mortality of 99.9 per cent. I asserted that that *was* the mortality of Cæsarian Section. Dr. Sænger misrepresents me again in saying that I said it *is still* the mortality. I suppose that he must think I am alluding to some modification of his own which may have been in a small group of cases more or less successful. I alluded to nothing of the kind. I alluded to the past history through generations of this fatal operation, and every one, in this country at least, knows that not anything approaching one in a hundred cases recovers. This is not a reckless statement of mine, it is an opinion which has been displayed by every contribution to the literature of obstetrics during the last one hundred years in England. It induced Simpson to make his celebrated joke that "Cæsarian Section was not successful unless it was done by a cow."

Dr. Sænger asks me if I have been taught nothing by the researches of Semmelweis and Lister, Pasteur and Koch. I do not know the first of the four. In Lister I have seen a humiliating example of an eminent man of science warped by a delusion and obliged to maintain absolute silence in face of adverse criticism. The researches of Pasteur and Koch have long since, in the opinion of many here been blown to the winds. The germ theory of disease and the details of practice which have been based upon it are such as suit the metaphysical tendencies of the German mind, and afford elaborate opportunities for subtle definitions and distinctions, as exemplified in Dr. Sænger's paper upon pyo-salpinx. These speculations, however, like others of their kind, are based upon the fallacy that the theories and facts of the process of decomposition are made to do duty for the theories and facts of the disease. But those of us who have clinical materials to work upon, and care to observe and carefully record clinical facts, know well that living tissue does not follow the same processes which infusions of dead meat do in the laboratory of the biologist.

If the cause of the salpingitis be the germ, which is so satisfactory to the mind of Dr. Sænger, why is it that the disease is confined absolutely to the tubes in the great bulk of instances? Why do we not have acute suppurating metritis? Why does not the inflammatory action extend all over the peritonenum and to every viscus in the body? What is there in the fimbriated extremities which has such a powerful antiseptic influence in arresting the progress of this all-powerful germ? All these absurd crotchets have fortunately had but a short hold on the English understanding, and their tenure is rapidly approaching an end.

I have neither time nor inclination to re-enter upon the controversy of the last ten years, in which I have taken an active share, in showing my reasons for the disbelief alike of the germ theory and practices based upon it. But I shall speedily have an opportunity of addressing myself to this question, and I shall take up the text of Dr. Sænger's utterances upon pyo-salpinx.

To a teacher of the germ theory such divisions of disease as Dr. Sænger seems to believe in may afford a large amount of comfort, but to the practical surgeon they are useless and delusive, whilst neither in clinical material nor in pathological research have yet found support.

I can not regard the man who seriously believes in the production of tubercular disease by the presence of a bacillus or its location in the tube by accidental contact with the vulva as being more rational or reasonable than the man who believes in the bacillus of an earthquake. The whole blunder of the germ theory of disease has been the mistake of association for causation.

Dr. Sænger asks me what disease before the introduction of Listerism killed thousands of patients who had received wounds or who had been operated upon. I say that nothing more completely answers his question than the one word DIRT.

Dr. Sænger again asks me what is puerperal fever? We, in England, are beginning to understand that a whole lot of different things are mixed up under that term, and at present I am not prepared to say anything more definite about it than that our answer to this important question has been greatly hindered by this mischievous germ theory. Dr. Sænger says that this has been demonstrated and the other theory has been proved. We do not accept any one of these assertions. I am, etc.,

LAWSON TAIT.

P. S.—I have just seen the conclusion of Dr. Sænger's article, and regard as amusingly inconsistent the advice given with the example set by Dr. Sænger in the style of language he adopts. His statement that neither before nor after the operation do I concern myself with the nature of the disease treated, is absolutely untrue. Further, the statement that I admit that in every fifth case I make an error in diagnosis, is a gross misrepresentation of the facts. What I have said is that ubal disease can be easily diagnosed, but that differential diagnosis of the contents of the tubes whether they be serum, pus or blood, can not be made with certainty in more than four out of five cases.

If Dr. Sænger can do better than this, there must be one of three special explanations :

I. He must be a heaven-inspired gynæcologist.

II. Tubal disease must be very different in Germany from what it is in England.

III. Or he is evolving the whole thing from his inner consciousness without any more real knowledge than his countryman had of the celebrated camel.

In conclusion let me say that when Dr. Sænger tells me that in Germany they have long since ceased to regard as serious my theoretical utterances, which pretend to be scientific, he is manufacturing the whole by a process of imagination. I have made no pretense to be scientific, and have advanced no theories. I have adhered rigidly to facts. It is Dr. Sænger who has invented the theories and mischievously stuck my name on them.

L. T.

W. W. JAGGARD, M.D. Editor,
2330 Indiana avenue.

THE CHICAGO MEDICAL SOCIETY.

STATED MEETING, JUNE 20, 1887.

The President, W. T. Belfield, M.D., in the chair.

Dr. Harold N. Moyer and Dr. Alfred Hinde presented a paper on

"PERIODICALLY RECURRING OCULO-MOTOR PARALYSIS,"

with the report of a case.

The patient had suffered from her seventh year with complete paralysis of the third nerve in all its branches. The attacks recurred at varying intervals of from four to six months and were always accompanied by headache and vomiting. The attacks have grown more frequent of late; and, since the earlier ones, recovery from the paralysis has not been complete.

The literature of the affection was given, and mention made of some sixteen cases so far reported. The etiology, pathology and prognosis also received consideration.

DISCUSSION.

Dr. W. F. Coleman : This paper is so excellent and unique, I certainly have nothing like it in my own experience to relate. I have perhaps fifteen or twenty text-books in English, German and American, but none of them refer to periodical paralysis of the motor oculi nerve, and I have seen no reference to it in any work on the eye. Isolated paralysis of the whole third nerve, even of organic origin, is a rare affection without involving other cerebral nerves. As the interesting point in the paper is the source and pathology of the disease, I will not undertake to discuss any other point. These cases are more interesting, if possible, to the general practitioner than to the oculist, on account of the connection between cerebro-spinal disease and paralysis of ocular muscles. The post-mortem in three cases showed that the nerve trunk itself was involved, which would point to an organic origin of those cases of periodic motor oculi paralysis, and I suppose in those cases relapses occurred from inflammatory exacerbations. I agree with Dr. Moyer that a large majority of the cases related would in all probability be functional. In his own case there were symptoms of migrain, viz., headache and vomiting, accompanying the motor oculi paralysis. Organic lesions of the brain, such as basilar meningitis, etc., are in the great majority of cases, say 75 per cent., accompanied by optic neuritis. Since in the sixteen cases related by Dr. Moyer there is no mention, I believe, of optic neuritis, I infer the motor oculi paralysis was not due to organic disease of the brain, but to functional causes.

Dr. C. F. Sinclair : It has never been my experience to have met with a case precisely similar to that to which Dr. Moyer has referred, neither have I met with one in my reading. But it seems to me from the number of cases to which he refers, all with symptoms resembling one another in one or more particulars, and in all of which was found this element of periodicity, that we have almost data for the establishment of a new and definite pathological condition which would lead the way to very broad investigation in ophthalmic science. The paper is particularly interesting to me because one case to which reference has been made resembles in a very great degree one which came under my observation some weeks ago. It was a case of paresis of only one of the branches of the oculi motor nerve, but it was sufficiently marked to cause a high degree of ptosis. The element of periodicity was present in this case, and that, I take it, is the peculiar feature in the cases cited by Dr. Moyer. In the case to which I refer were associated with the paresis other peculiar and morbid conditions. My patient was a young woman, 17 years of age, of German parentage. When I first saw her I noticed at once a peculiar expression of the eyes, which I found came from the fact that one was a light, almost sky blue, and the other gray. She told me that three years previous both of her eyes had been dark brown and that two years ago the left eye began to grow lighter in color, changing to a light gray. That is a phenomenon which I must confess never to have heard of before, where the pigment in the eye of a person of that age has undergone such marked changes within a period of three years without any evidence of iritic inflammation to account for them. Dr. Moyer, I believe, mentions a case where this oculi motor paralysis had occurred in the spring successively on several different occasions. The attacks which my patient suffered occurred also in the spring, coming on each time in the same month and nearly the same day. When she came under my care she was suffering the third attack, which was precisely similar in every respect to the two preceding. There were several days of extreme languor and drowsiness, during which time there was an irresistable impulse to

cry on the slightest occasion. Then followed the ptosis, accompanied with severe neuralgiac pain through the temple and over the vertex on one side, and at the same time a small infiltrated ulcer made its appearance on the lower margin of the cornea. The usual local means I found entirely unavailing in checking the attack. This case suggested to my mind the possibility, and the suggestion has been renewed with added force to-night, that as ophthalmic surgeons we are too apt to dwell solely upon the local manifestations of disease in the arteries, tunics of the eye and its appendages, and to limit our treatment entirely to local treatment. It seems to me that it is time for us to recognize the fact that in many of the morbid conditions of the eye which we have been accustomed to consider as altogether of local origin, the causation lies in reality much deeper, either in the great nerve centers or in diseased conditions of other and perhaps remote organs, and unless we direct our remedial measures to these our results can only be transient and unsatisfactory.

Dr. Moyer, in closing the discussion, said: Here, as in similar cases, we need to have an exact definition of what we mean by the term "functional." If we call only those lesions organic in which there is no absolute degeneration or destruction of the nerve cells, and speak of transitory congestion as "functional," then we must all admit that many, perhaps most, of these cases fall within the latter class. But the term used in its strictest sense—that is, in the sense that hysterical or reflex conditions are functional—then the only case so far as our observation extends, ever reported is the one described by Jacobi. Every case of the seventeen so far reported, including our own, has been progressive. The recovery earlier in the disease was complete after each attack. Later a certain amount of paralysis would remain. Mobius refers the paralysis to an inflammation or congestion of the nucleus of the nerve, coming on periodically, and which in time results in a certain amount or even total paralysis. The anatomical diagnosis is the most interesting feature of the case. We have purposely refrained from offering any theories of our own regarding the probable seat or nature of the difficulty; yet we confess to a strong leaning toward the theory of a nuclear degenerative process. As Dr. Coleman has pointedly said, this disease in not associated with any changes in the retina or optic disc, which rather militates against the theory of a basilar meningitis as the basic pathological condition. We must however admit that the two earliest cases that came to a post-mortem examination were basilar in their nature, and in the third an enchondroma had impaired the integrity of the nerve.

Report:

"CANCER OF THE TESTICLE, WITH SECONDARY PLEURISY,"

with exhibition of pathological specimens, by Dr. John A. Robison.

The subject from which this specimen was obtained was a Frenchman, aged about 24 years, who was admitted to the Cook County Hospital May 1st, for a tumor of the left testicle, pronounced sarcoma, of eleven months standing. An operation was advised and refused, the patient leaving the hospital. A few days ago he returned with all the signs and symptoms of effusion in the left pleural cavity. The symptoms were so severe that I ordered him to be aspirated, and remarked that the product of aspiration would undoubtedly be bloody serum. So it was. The patient lived only a few hours, and the autopsy demonstrated that there was a large cancerous tumor, six inches in diameter, in the scrotum involving the left testicle; also, a tumor nearly as large in the abdominal cavity, with secondary cancerous deposits over the pleuræ of both lungs at the apices

The symptoms of cancer of the pleura are always obscure, unless we have the history of primary cancer in some other part of the body. This is the fourth case of pleural cancer I have seen, the cause in these cases being respectively cancer of the kidney, as diagnosticated by Dr. Fenger, cancer of the humerus, cancer of the liver, and the present case of cancer of the testicle.

The exudation in cancerous pleurisy is serum mixed with blood and tissue detritus, if the cancer granulations are degenerating. I believe the bloody serum is almost pathognomonic of cancer, as about the only diseases in which we obtain such a fluid on aspiration is in pernicious, or malarial, anæmia, phthisis and purpura, and even in these diseases the exudation is more likely to be purulent.

Two causes for the hæmorrhagic effusion have been assigned:

1. The effusion is the result of the breaking down of the cancerous granulations.

2. It is the result of the cancerous cachexia, where the blood is impoverished, the absorbent vessels weak and osmosis very rapid.

I am inclined to believe the effusion is due to inflammation produced by the presence of these foreign bodies—the graulations—and the breaking down of these granulations.

Remarks: These cases teach me this lesson: that oftentimes patients who suffer from cancer of some portion of the body amenable to treatment, frequently die of secondary cancer of the pleua,

which might have been averted had the primarily diseased tissue been entirely removed. This is certainly true of many cases of cancer of the genital organs, breast, bones, etc.

The specimens were then exhibited. They consisted of the original cancerous tumor of the testicle, the collapsed left lung, whose pleural surface was thickly covered by the reddish exudate, and the right lung, in the apex of which was a cancerous growth one and a half inches in diameter.

DISCUSSION.

Dr. H. A. Johnson: Cancer of the lungs occurs primarily but very rarely. I have seen two cases. Recently I saw a case which I supposed to be cancer of the lung in which there was primary cancer of the larynx. It was interesting as the only case I have seen where cancer of the larynx has been followed by secondary cancer.

Dr. Robert H. Babcock: I am particularly interested in the case just mentioned, especially in that part pertaining to cancer of the pleura. I was reminded of a case that it was my good fortune to see in Munich, by the remark that serum mixed with blood is almost pathognomonic of cancer of the pleura. In the hospital in charge of Von Ziemssen was a man who had been in several hospitals, and in whom Bamberger, in Vienna, had diagnosticated cancer with pleurisy of the left side. The same diagnosis was made by Von Ziemssen and his assistant. I examined the case, and although I do not remember all the signs present, I remember being struck with the extreme flatness over all the left side, the absence of respiratory sounds, the resistance of the side. The assistant informed me he had been tapped and a bloody discharge obtained, which seemed to confirm the diagnosis. A day or two previous to my leaving Munich I inquired about this case. The man had died, and they found no cancer whatever, but a remarkable thickened condition of the pleuræ; the fibrinous deposit having become very highly organized. It was the oozing from the blood vessels which were severed in the tapping which had given the bloody discharge, and misled such celebrated men as Bamberger and Von Ziemssen.

Dr. Elbert Wing: I do not know of a case that is similar to this, but I remember a case which I saw diagnosticated by the late Prof. Frerichs, of sarcoma of the lung, primary. The symptoms were those of severe, acute lancinating pain, and rapid development of the tumor, with no family history showing what the lesion might be. The physical signs were those of consolidation at the right apex. Everything else being excluded in the diagnosis, Prof. Frerichs said it was either a carcinoma or a sarcoma, and that as sarcoma of the lung was more common he presumed it was sarcoma. After a post-mortem microscopical examination Prof. Frerichs' assistant said it was a case of sarcoma. Prof. Virchow's assistant said that it was carcinoma. It was probably one of those cases that are right on the border line between the two tumors, viz., sarcoma-carcinomatodes, and the examination was not complete. In regard to the bloody effusion, or fluid, in the pleural cavity, I happened to hear Prof Frerichs say he always regarded that as an indication of tubercular pleuritis.

Dr. Frank Billings: The only thing of interest I have to offer is in regard to the color of the serum. Profs. Nothnaegel, Bamberger, and Kundrat, of Vienna, teach that bloody serum in *any serous* sac is due to (1) a malignant growth (carcinoma, sarcoma, etc.), (2) tuberculosis, and (3) to poisons that cause fatty degeneration of the walls of blood vessels and consequent capiliary hæmorrhage (phosphorus). The presence of the bacillus tuberculosis would easily differentiate the first two causes, if the growth in the lung *were* primary carcinoma. The last cause would hardly be mistaken for the first two.

Dr. J. J. M. Angear: I do not know, Mr. President, that I have anything further to add to this subject, except as far as my observation goes, cancer of the pleura has alwas been secondary. I have seen cases of secondary cancer, not only of the pleura, but the sub-serous tissue of the pleura, the connective tissue around the base of the heart infiltrated with malignant growth, as well as the substance of the lungs. Bloody serum comes from extreme passive congestion—impoverished condition of the blood, as well as from the breaking down of the cancerous growth. Our knowledge of the primary cancer aids us greatly in recognizing the cachexia. Taking these two things together with a bloody serum in the pleura, the diagnosis of secondary cancer of the pleura becomes simple.

Dr. John A. Robison, in closing the discussion, said: The diagnosis of cancer was simply suggested to me by the nature of the tumor, the slow growth, and the amount of pain the patient had, etc., and finally the character of the effusion. The question that puzzles me most is, whether, when aspirating a patient we get this reddish fluid, it is not a pathognomonic sign of cancer. It has been my good fortune to have had an extended experience in the aspiration of a large number of patients, tubercular and otherwise, and in cases where I obtained well-marked physical signs of tuberculosis (it was before we examined for bacilli) never have I obtained this reddish fluid, and in all cases of cancer which I have aspirated I have obtained this reddish fluid. It was the same color

each time. I am groping about for an opinion, but would not say positively that when we get that kind of fluid the patient has cancer.

Dr. Robert H. Babcock reported

"A CASE OF PERICARDITIS AND ENDOCARDITIS."

Mrs. B., aged 23, Norwegian, consulted me April 30, 1887, complaining of præcordial pain and dyspnoea. History was as follows: Her mother died of heart disease; father in good health; youngest sister has heart disease as result of rheumatism; strong family predisposition to inflammatory rheumatism. After birth of only child, six years ago, patient was ill a year of rheumatic fever but had no knowledge of heart or lung complications at that time. Since fore part of last winter has been suffering with rheumatism in ankles, left knee and corresponding shoulder. For past three weeks has been unable to lie down because of pain in the chest and shortness of breath. No history of any lung trouble.

Her symptoms were acute præcordial pain, intensified by dorsal decubitus, pressure and full-inspiration; also slight joint pains. Cough troublesome, with mucus expectoration; sleep very broken; appetite poor; constipation; dry, coated tongue; no fever; pulse 120, feeble and unequal. Respiration short, hurried and sighing.

Examination of heart revealed impulse in fifth interspace outside of mammary line, feeble and preceded by a short thrill, a very marked pulsation in the third left interspace close to sternum, due to closure of pulmonary valves; considerable increase in all diameters of the area of praecordial dullness, particularly above and toward the left, where the lung border was retracted and fixed. Upon auscultation was heard a short, rough, presystolic murmur at the apex followed by a higher pitched systolic whiff, which latter murmur was propagated into the axillary region and on to the base of the heart. Over the body of the organ was also heard a rough sound of rolling characters, not unlike the rhythm produced by the hoofs of a galloping horse. Owing to the weakness and evident misery of the patient the lungs were not examined, a fact I now greatly regret. The diagnosis was acute simple endocarditis, supervening upon chronic endocarditis changes; mitral stenosis and insufficiency; pericarditis and possibly myocarditis; chronic inflammatory rheumatism. Rest in bed, hot applications to the praecordial, salicylate of sodium and digitalis in small doses were prescribed. In a day or two the digitalis was discontinued, however.

Under this treatment the pain in the chest was abated and the patient's condition improved, although the pains in the joints continued. At the end of ten days, upon her urgent solicitation, she was permitted to get up and lie on the lounge. The pulse never became slower than 110 to the minute, which I considered a bad indication from the close of the first week. At the end of another ten days or so she took to her bed complaining of anorexia nausea, and inability to retain food. The tongue was heavily coated and dry, and slight catarrhal icterus developed. A few small doses of calomel, followed by an alkali and simple bitter, afforded prompt relief, and for the next week the patient appeared to improve in some respects. Her condition was tolerably comfortable by day, but by night she suffered much from restlessness, pain and dyspnœa. Repeated examination of the heart disclosed no increase of praecordial dullness, while the endocardiac and friction murmurs became even more intense and characteristic, except for a short time, during which the urine was very scanty. The lessened intensity was probably due to effusion, as very likely was also the abatement of pain. Under the effect of a diuretic the friction sounds reappeared with added distinctness. June 2nd she suddenly developed an acute attack of rheumatism of the left wrist and thumb joints, with coincident aggravation of chest symptoms. A double two and front-friction sound became remarkably distinct over and about all the ensifom cartilage. Temperature was 102 F. Salicylate of soda brought prompt relief from pain, with, however, but slight effect on the temperature. The urine, which was intensely acid, was rendered alkaline by bicarbonate of potash.

Sunday, at 2 o'clock, A.M., she was seized with a sharp pain in the chest and epigastrium, lasting two hours, only relieved by opium. When I visited her next day she was suffering much from dyspnœa and exquisite pain in the epigastrium. The lightest pressure could not be borne, while the abdominal walls were very tense. Satisfactory percussion and palpation were out of the question, and hence I was greatly puzzled to account for her symptoms. Her pulse was 138 and very feeble. Cursory examination of the lungs disclosed mucous rales at right base posteriorly, and slight dullness below the angle of left scapula, with tympanitic note above. A loud, rough systolic murmur obscured the respiratory sounds, but the voice was heard with great distinctness. Hot applications to the epigastrium afforded relief to pain and the abdomen became less tense. At 11 P. M. of Wednesday there was sudden effervescence followed by profuse perspiration for the balance of the night. Thursday P. M. she was without fever and comparatively free from pain. Upon examining the chest I found the physical signs very much as three days before, except that there were moist, for the most part subcrepitant, rales over the area of dullness; voice very distinct. Cough was well-nigh im-

possible by reason of pain; the scanty expectoration had a slight brownish-red tinge. I made up my mind that I had a pneumonia to deal with which had sneaked in and escaped my notice. Further reflection, however, convinced me that this opinion was probably an error, and that there was a hydrostatic congestion with bronchitis.

The patient's strength steadily waned, and the following evening death closed her struggles. She and I were both handicapped throughout, as she had no good nursing, but was dependent upon the tender (?) mercies of indifferent neighbors. So far as possible, nevertheless, the treatment was supporting and anti-rheumatic, although in combating the rheumatism with potassium salts and salycilate of soda I had to exercise caution for fear of depressing the already weak ened heart. Death took place from exhaustion

A few more words and I shall have finished. The chief symptom complained of was in the præcordia and between the shoulders behind This was probably due directly to the acute pericarditis which the autopsy showed had been limited to a small area on the anterior service of the left ventricle just below the origin of the aorta, and to the posterior aspect of the left auricle, which latter situation, it seems to me, would account for the interscapular pain. Since the necropsy revealed no cause for the epigastric pain and tenderness, it is reasonable to assume that these were reflected. I have since found a statement in Zeimssen's Cyclopædia to the effect that this epigastric pain and tenderness on external pressure is not an uncommon occurrence in pericarditis.

I of course suspected the existence of pericardial effusion, but did not at any time demonstrate its existence to my satisfaction, because, owing to the denudation of the heart already present, it did not influence the area of cardiac dullness and did not abolish the friction sounds, as I expected an effusion would do. I have since learned that, according to Ceuka, as stated by Bauer in Ziemssen's Cyclopædia, friction sounds have been audible even when the pericardium held a quart of fluid.

Within the left pleural cavity were, as was estimated, eight or ten ounces of serous fluid which I had not diagnosticated. Under favorable conditions this small quantity of liquid ought to be discovered, but in this case the conditions were complex and so modified physical signs as to mislead me. Had the layer of fluid been of sufficient depth to intercept the sound waves, on their passage through the pleural cavity, the complete or partial suppression of the respiratory and vocal sounds would have revealed the presence of the effusion. In reality, however, the hypostatic congestion, discovered post-mortem together with the comparative condensation of the lungs, occasioned by the enlarged heart and effusion, produced a condition calculated to intensify the transmission of sound waves instead of deadening them. Hence, the distinctness with which I heard the rales, the voice and breath sounds, although, owing to the loud, harsh systolic murmur, I could not determine the quality of the respiration. The very intensity with which the mitral bruit was transmitted still further served to mislead me. Yet, it may be asked if the effusion was so slight, how could it give rise to a tympanitic percussion note above the level of the fluid? In fact, this sign in conjunction with the consolidation below, as I supposed, was very puzzling to me at the time. Reflection, however, enables me to explain it, I think. Tympany above the level of an effusion is explained by Gerhardt as being due to the relaxation of the lungs caused by the pressure of the fluid. In other words, the normal tension of the lung is lost. In this case, whereas the effusion alone may not have sufficed to occasion material relaxation of the lung, it was assisted to this end by the pressure of the heart in front, which, as shown by the autopsy, had crowded aside the anterior border of the lung where it had become fixed in its new position. Thus the normal lung tension was overcome.

Whether my failure to recognize the pleuritic effusion intra vitam can be excused on the ground of the complexity of the conditions present or not, it has proved a most salutary lesson to me; and it was in the hope that others might perchance profit by it that I have ventured to trespass so long upon your time and attention.

Post-mortem notes: Family predjudice prevented a thorough examination.

Heart.—There was about four ounces of clear, reddish serous fluid in the cavity of the pericardium (quantity estimated). The parietal layer of the pericardium was throughout its extent very greatly thickened and covered with projections and folds of fibrinous deposit, disposed in somewhat parallel ridges, running irregularly in direction, and most markedly present over the anterior and posterior surfaces of the sac; these areas corresponding in situation to similar ones in the visceral layer of the heart. Their appearance was partly villous and partly velvety. The visceral layer of the pericardium was also involved throughout its entire extent. The fibrinous deposit was thickest over the anterior surface of the heart, where it was thrown into folds and ridges whose general direction was at right angles to a line passing from base to apex of the heart. Many of these ridges were from two to three six-

teenths of an inch in heighth, and they were most abundant and largest about the middle of the anterior surface of the heart.

Over the posterior surface of the heart the fibrinous layer is, upon the whole, much thinner, but the projections are more distinctly villous, many being, in fact, severed bands of adhesion, and the general appearance somewhat reticulated.

On the anterior surface of the heart, immediately below the line of the aortic valves, there was a recent circular adhesion, one inch and a quarter in diameter, soft and easily separated.

Over the posterior surface of the left auricle the inflammatory process was evidently quite recent. Immediately above this spot the pleural surfaces were involved, and there was a small area just there of pleural adhesion.

The position of the heart was such that the right border lay transversely and the apex was three inches to the left of the median line. The heart had completely displaced that part of the lung which lies in front of the heart. The auricles of the heart were filled with dark firm clots, and the ventricles were approximately empty.

The endocardium of the left ventricle was of a dull, turbid, grayish color, mottled with occasional small, yellowish-gray points, but smooth and glistening.

There were vegetations upon the aortic valves disposed in a highly characteristic manner. Just below each corpus aurantii there were knots or clumps of vegetation about the eighth of an inch in diameter and height, somewhat pyramidal in form, and extending in a crescentic line from these points; along the so-called line of contact of the valves was a clearly marked row of smaller vegetations. The vegetations were most abundant on those segments of the valves which are opposite the point of origin of the coronary arteries. There were a few very small patches of fibrous tissue at the base of the aorta.

The anterior segment of the mitral valve was markedly thickened throughout its extent, and it was also moderately contracted. The posterior segment was similarly thickened and so adherent to the contiguous ventricular wall that only about one-fourth of an inch of its lower border was free. The edges of both segments were about one-eighth inch thick and studded with vegetations which had a distinctly granular appearance and feeling. The result of the contraction of the segments was a moderate stenosis of the orifice. The left auricle was greatly dilated and its endocardium thickened and studded with small irregularly-shaped fibrous patches. Its color was a turbid, yellowish gray.

The muscular tissue of the heart was dull, pale and flaccid. The thickness of the wall of the left ventricle (muscular tissue alone) was one-half inch. The heart measured 5¼ by 5 inches, and weighed 1 pound 2 ounces (avoirdupois). There was a moderate dilatation of the ventricles, but the enlargement of the organ was more of the nature of an hypertrophy than a dilatation. Except as mentioned, the changes in the heart were not of special pathological interest.

Lungs.—There is a fluid in the left pleural cavity reaching, as the body lies, in the dorsal decubitus to the anterior axillary line. This fluid was not measured but was approximately eight to ten ounces, clear and slightly reddish. The lower border of the upper lobe of the left lung corresponded anteriorly to the third rib and was adherent. This line of adhesion, as well as a few others over the surface of the lung, was not of very recent origin, but yet was easily broken down. That part of the pleural surfaces, however, immediately next the base of the heart was very firmly adherent. In this lower part of the left lung there was a moderate degree and amount of hypostatic hyperæmia and œdema. There were a few old and moderately firm adhesions over the right lung. The spleen was of less than normal size and soft and degenerated. The liver was rather pale but in a state of moderate passive hyperæmia. There were a few very thin and not very recent bands of adhesion between its left lobe and the diaphragm. The other organs were not examined.

The diagnosis, limited to the organs examined, was: chronic pericarditis, serofibrosa, and endocarditis with recent acute exacerbations of both with effusion, chronic myocarditis, and chronic and acute circumscribed pleuritis of the left side with effusion and pulmonary hyperaemia and œdema; chronic pleuritis of the right side; circumscribed peritonitis (diaphragmatic), subacute splenitis, passive hyperæmia of the liver.

Dr. John A. Robison: I think Dr. Babcock was perfectly excusable in not detecting the pleurisy, because often times when there is not more than eight or ten ounces in the pleural cavity and no complicating disease, if the respiratory sounds are very intense, or if the lung has not been pressed upon to any great extent, there will be still a sufficient amount of resonance on that side to overcome any dullness the small amount of effusion will cause. I know in a great many cases it is a very puzzling question to a person making an examination to tell whether there is any fluid in the cavity or not by the physical signs.

STATED MEETING, TUESDAY, JULY 5.

The President, W. T. Belfield, M.D., in the chair.

Dr. E. B. Weston reported

"CASES OF SYNOVITIS OF THE KNEE JOINT."

Synovitis, though a surgical disease, is one which the general practitioner often treats—is often compelled to if he have a country practice—and there is no reason why he should not treat it well and successfully.

A slight synovitis may recover rapidly without treatment, and so these cases get well when treated with a poultice, or painted with tincture of iodine. But the physician who makes this his routine practice will not have many "flattering successes," and the number of cripples in his neighborhood may be monuments to his want of thoughtful attention.

I have four cases of synovitis of the knee to report. Not that they present points of peculiar nte rest, but to emphasize their importance, even though I disclose my own mistakes in doing so.

Case I.—A. B., Irish, aged about 50, laborer. I met him on the street Jan. 1, 1885, when he told me he had pain in his left knee; that he did not know of injuring it in any way. Having a physician's dislike for using "all out doors" for his office, and being consulted wherever he chances to meet a would be patient, I gave him little attention, and advice of a very general nature. One week later he sent for me. I found him in bed suffering severe pain, knee distended with fluid in joint cavity, leg flexed. He refused to have fluid evacuated, or even to have leg put on splint, although I plainly told him of the probable consequences of not doing so. Then, instead of leaving the case, I allowed him to be his own physician, while I continued to make daily visits and suggestions.

I have no full notes of the case, but it went from bad to worse. Abscesses formed in the thigh, which were opened as they developed, drainage tubes passed in various directions, the limb becoming honey-combed by the burrowing pus. These cavities were frequently syringed with carbolized water and the limb kept on a pillow of oakum. He was given a nourishing diet, stimulants and tonics. But he gradually lost flesh and strength, temperature increased, and on the 1st of March he died of sepsis and exhaustion.

Case II.—C. D., American, aged about 45, by profession a lawyer. First saw him March 4, 1886, when he told me his left knee had pained him quite constantly, but not very severely, for about ten days. He thought he had taken cold in it while sitting at his desk, under which he had felt a draught. I found knee moderately enlarged, joint distended with fluid and hot and painful. I ordered him to bed and had applied an anodyne liniment and warm fomentation.

This treatment was continued for three day without benefit, when I opened the synovial cavity with a bistoury and evacuated about eight ounces of light straw colored, probably nearly normal, synovial fluid. He was at once relieved of pain, the limb put on a well padded posterior splint, and an elastic bandage applied. The fluid gradually reaccumulated, and in four days the joint was again full, hot and painful. I now aspirated it and reapplied bandage. There was again a slight filling, but not sufficient to necessitate opening. The patient steadily improved, and in a few weeks had perfect use of the joint.

Case III.—E. F., a Swede, aged 25, painter. Feb. 19, 1886, at noon, while on his way to work he fell, striking his right knee on the ice. It caused him severe pain for a short time, but he worked the whole afternoon, standing on a step-ladder, without much discomfort. At night the knee began to swell and pain him intensely When I saw him the knee was hot, very painful and moderately distended, and leg flexed. A liniment composed of opium, aconite and menthol was applied, with warm fomentation, and opium given internally. No improvement taking place, and the joint becoming much distended, on the 22nd instant I opened it with a bistoury, letting out a large quantity of blood-colored fluid. He was at once relieved of his intense pain. He made a steady recovery, and in about two months had perfect use of the joint.

Case IV.—S. H., aged 38, a carpenter. He had been at work on outside of building most of the winter, and of late had been obliged to kneel on scaffolding a good deal. When I saw him on Feb. 3d, he told me his left knee had been painful and getting stiff for sometime. It was then painful and contained a small amount of fluid. I could not convince him of the importance of giving it rest. I saw him occasionally during the following weeks, during which he was working about and simply using a liniment. On the 11th inst. the condition of the knee being decidedly worse, I told him unless he was willing to give me absolute control of the case, I should do nothing more for him. He was unwilling to submit, and I did not see him again for four days, when he sent for me. The joint was now moderately distended, and the patella floating. I applied posterior splint and elastic bandage, and the patient went to bed. Three days later, the joint being very full, I opened it with a bistoury, letting out a quantity of apparently unchanged synovial fluid. Immediate relief followed, and the bandage was reapplied. The patient was given quinine, iodide of iron, and the kidneys and bowels kept active. But the improvement was not permanent. The joint slowly refilled,

and in three weeks it became necessary to evacuate it. This time I used the aspirator, and an accident happened which I am quite sure will not occur to me again. Being ready to introduce the needle, I asked my friend, who was assisting—a most careful and intelligent physician—to exhaust the aspirator bottle. All being ready, I passed the needle into the tissues until the opening near the joint disappeared, when I requested my assistant to turn the stop-cock, and as he did so I thrust the needle into the cavity of the joint. I was startled by a shriek of pain; and I have rarely seen such an agonized expression on any face. The muscles of the leg instantly became rigid and prominent, and the joint increased in size, but no fluid appeared. Fortunately the probable cause of the trouble at once occurred to me. The bottle had not been exhausted but filled with compressed air. The needle was withdrawn, the aspirator made ready and the fluid evacuated as intended. The air which had been driven into the joint bubbled out with the liquid. But the cellular tissue of the thigh contained air which could be felt for two weeks, by which time it had disappeared, leaving no ill effects. Apparently the joint was not injured by its forcible distension, though in four days it had become filled again, and I withdrew with the aspirator fluid of the same appearance as before. In just one week, the other knee having become similarly involved, and the joint cavity very full, I aspirated it. From this time he steadily improved and made a perfect recovery.

I have intentionally omitted to speak of the anatomy of the knee, or of the pathology, diagnosis and classification of the cases I have briefly reported. But it would seem proper to treat them by pressure, absolute rest, and early, and if necessary, repeated evacuations. Barwell, whose reputation in diseases of the joints is certainly second to no man's, says: "If the inflammation be sufficient to cause considerable secretion into the joint, producing marked fullness of the sac, the synovial membrane should be punctured * * * to relieve the tension."

Howard Marsh, in his work on "Diseases of the Joints," says:

"It is now well known that matter, whether connected with acute or chronic arithritis, may be safely evacuated, with the result that the severe suffering, the prolonged fever, the wide and destructive burrowing, and the formation of sinuses, which were the common rule only a few years ago, can be generally avoided."

Dr. G. J. Tobias:

I think the paper is a very good one and the cases reported interesting. The doctor states that in two cases he made an incision before he aspirated; I would ask why he did it, why not try the aspirator first? The accident spoken of has occurred before in this city, that of compressing the air in the bottle instead of pumping it out and producing a vacuum, thereby causing compressed air to be forced into the joint cavity, with some times most serious results. Would it not be a good plan to have some basin or small receptacle at hand containing water, to try the aspirator first and see that it is in proper working order? I wish he would also tell us more fully how he used the posterior splint and whether he padded it, the material used for bandage, etc.

The President:

I take it for granted that Dr. Weston took the ordinary cleanly and antiseptic precautions before incising the knee-joint. Most of us would be inclined to use the aspirator before making an incision, since it is a common observation that after the knee-joint has been aspirated once, twice, three times or more, resolution has occurred and the functions of the joint resumed even when the fluid was purulent. The accident in the use of the aspirator reminds me of one of which I am personally aware as occurring in this city, and which had a more unfortunate termination than in Dr. Weston's case, where most of the air got into the tissue outside of the joint. In the case to which I refer the stop-cock was not turned until the needle had entered the joint, and in three minutes the patient was dead.

Dr. E. B. Weston, in closing the discussion, said:

I used the bistoury instead of the aspirator because it was more convenient at that time. The bistoury has been used a good many times; but I don't pretend to say it is better, perhaps not so good; but in my case it was a matter of convenience. The cases did well. The posterior splint was well padded with cotton. I used for the splint heavy sole leather. An elastic bandage, or rather a flannel bandage, was used below the knee and on the thigh and a rubber bandage to make the pressure over the knee-joint. Of course the aspirator should have been tested. The mistake should not have occurred. And yet no injury was done by the violent distension of the joint, or by the air which entered it.

Dr. William T. Belfield reported

A CASE OF MERCURIAL NECROSIS, WITH SPECIMEN.

The case of mercurial necrosis that I wish to mention is that of a young man, apparently in excellent health, who seven years ago contracted a chancre which was followed by the usual symptoms of constitutional syphilis. He was treated by a regular physician in an eastern city, and for a year and a half had the usual history of a

healthy man contracting syphilis — mucous patches, occasional rashes on the skin, etc. After about two and a half years, during which time he was under constant observation and much of the time taking medicine, he had no further indication of constitutional syphilis. It went along that way for about four years. Over six years after the contraction of the chancre, he noticed a slight lump on the instep of the left foot which gave a little pain when he wore tight shoes. Fearing this might be an indication of the return of the disease, he went to his physician who prescribed syphilitic treatment. He ordered the young man to take one-fourth grain of yellow oxide of mercury pill three times a day. The patient, who was naturally anxious to overcome any taint that might remain in him, followed the direction faithfully, and for six months took one of these pills three times a day. At the end of this time his mouth became sore. About ten days after he first noticed the soreness of the mouth, being then in Chicago, he was directed to see me. At that time his gums were quite soft and spongy, his teeth felt loose and he could not bite bread with any comfort. On the left side the alveolar process of the upper jaw was exposed for about three-fourths of an inch in length and one-half inch in vertical breadth. The three molar teeth which were fixed in that portion of the jaw were decidedly loose. The hard palate corresponding to that part of the alveolar process was swollen and there were the usual symptoms of subacute periostitis. He was merely ordered to discontinue the mercury, use a simple mouth wash and take iodide of potassium. In the course of ten days the portion of the jaw exposed was so loose that it could have been removed without difficulty, but the patient, flinching from the slight pain this would cause, declined to have it removed and worked at it with his fingers until, about three weeks after I first saw him, he pulled the piece away. In the meantime he had lost three sound molar teeth. The piece is quite small, merely large enough for the insertion of the three teeth, but it is of some interest. The upper surface of it is the floor of the antrum. During a part of the time the cheek bone was swollen and tender but no abscess formed.

It may be questioned whether this necrosis was mercurial or syphilitic. The man unquestionably, seven years ago, had syphilis, but a little consideration shows that this necrosis was not syphilitic. In the first place, for four and a half years he has had no indication of syphilis; this little hardening of the instep, for which he took the mercury, still persists and is evidently not of syphilitic origin; furthermore, there was thickening and softening of the gums and loosening of the teeth, which was due to the mercury; and, lastly, while syphilis may cause necrosis of the long bones and of many other bones in the body, yet it rarely causes necrosis of the inferior and superior maxillary; while mercury causes necrosis in these bones with especial frequency.

Dr. Belfield said, in reply to a question, that the patient had not been salivated during the time of treatment so far as could be remembered.

Dr. Joseph Haven exhibited

A MECHANICAL SUPPORT FOR MAINTAINING THE LITHOTOMY POSITION.

The position most favorable for the majority of the operations on or about the perineum is that which is known as the lithotomy position. The patient prone upon the back, thighs sharply flexed on the abdomen, knees separated. For the patient to maintain this position unaided, is a difficult procedure, and when under an anæsthetic an absolute impossibility. Hence the necessity for assistance in some form. The usual custom is to entrust each limb to an assistant to hold during the operation. To this procedure there are some objections:

First, it increases the necessary number of assistants by at least two. Usually the patient, if not the whole household, is dreading the operation with nervous anxiety, and the sight of a number of assistants or an unnecessary display of paraphernalia does not tend to quiet their fears or relieve their anxiety, hence operations at the house should be conducted with as little display as possible.

Again, any one who has assisted in holding a patient in the lithotomy position for an hour or so, knows that it is a tiresome undertaking.

Again, emergencies are continually arising where they are called upon to render other assistance, as from their proximity to the operator they are in the way of others, and are called upon to pass instruments, wash sponges, etc., thereby neglecting their *own work* and the falling of the patient's foot in the operator's lap does not tend to *better* the results of the operation or improve the temper of the operator. Consequently it is not strange that various appliances should have been improvised by which the patient could be held in the proper position.

My attention was first called to this subject some six or eight years ago. The operation was for the closing of a lacerated cervix. The operator brought with him an apparatus made of three boards, about four feet long, joined on the sides by hinges. When the side pieces were raised and fastened by hooks the whole formed a sort of trough in which the patient was placed and a harness arrangement bound each limb to the corresponding side piece. While the appa-

ratus worked well upon this occasion, there are still objections to it.

In the first place, it required too long a time to extricate the patient from the apparatus.

Secondly, the effect of putting together such a contrivance in the sick room might be similar to the building of a scaffold in the presence of the condemned.

Thirdly, blood stains are not easily removed from wood, and should there be any septic influence in the case this would be readily absorbed in the pores of the wood; and I doubt the advisability of using a wooden apparatus in repeated operations in close proximity to open wounds.

In a work entitled "Minor Surgical Gynæcology," by Paul Mundé, the author speaks favorably of an apparatus designed by Dr. Hamilton, of Harrisburg, Pa., which he styles "Hamilton's Gynapod." This consists of a piece of wood upon which the buttocks rest; from this arises on either side an arm surmounted by a crutch which supports the knee. While being more simple than the apparatus previously described, some of the same objections hold good in this case. Again, as the limbs are not fastened in any way, it allows too much freedom to the feet. This will be particularly annoying if the operation be a trivial one, not requiring the administration of an anæsthetic.

If then an apparatus for this purpose is of service in these operations, what should be the essential requirements?

First—It should be so constructed that it can be instantly removed if emergency should arise.

Second—It should be of a material that will admit of its being thoroughly cleansed and disinfected.

Third—It should secure the patient firmly and at the same time be as simple, light and easy of transportation as possible.

Acting upon these thoughts, I had made, two years ago, an apparatus based upon the same principle as the one which I shall show you this evening, namely, a light nickel plated bar provided with a hinge in the center, allowing it to be folded up when not in use. This bar passes under the knees of the patient, holding them flexed on the abdomen by means of a band of webbing which passes around the shoulders of the patient; the webbing having a strap and buckle allowing the band to lengthen or shorten according to the size of the patient. Bands of the same material at either end of the rod securely hold the limbs below the knee; every strap being attached to the rod by means of a snap catch, which can be instantly disengaged if occasion so demands. A rod attachment for holding a fountain syringe completes the outfit. The whole apparatus when not in use fits into a case eighteen inches long, five inches deep and four inches wide.

In this connection it becomes my duty, and at the same time a pleasure, to accord to Dr. Thomas B. McBride, of Philadelphia, the credit of having within the last few months devised an apparatus somewhat similar in principle to the one just described. A description of his apparatus will be found in the *Medical and Surgical Reporter* for May. He writes me that he has, since that publication, added the hinge, thereby lessening the length of the apparatus when not in use.

In conclusion, I will add that I have found the apparatus serviceable in all operations where the lithotomy position is indicated, and particularly when operating for slight lacerations of the cervix where no anæsthetic was administered.

The President asked Dr. Haven whether the apparatus answered as well when the patient was under an anæsthetic.

Dr. Joseph Haven:

It answers better. I have used the apparatus a number of times with an anæsthetic and several other physicians have used it. The patient is liable to come out of either before the operation is finished, and with this apparatus they cannot do themselves any harm during the operation.

Dr. Tobias asked Dr. Haven in how many cases of laceration of the cervix he had tried the apparatus, and if the patient ever raised any objection to its use.

Dr. Haven:

Probably twelve or fifteen. No objection has been made to the apparatus except in one case; but you will find that some patients object to any instrument. This patient asked me what it was, and when I explained that it was not an instrument of torture, she readily consented to its use. However, where an anæsthetic is to be given I do not usually put it on until the patient is anæsthetized, and they do not see the instrument at all. It can be put on in less than one minute and taken off in the same time. I very often use it in dressing wounds around the uterus, packing the vagina after opening a pelvic abscess where I do not care to employ an assistant to hold the patient in the lithotomy position, or for slight operations on the rectum,—anything that would not require an anæsthetic.

BOOKS AND BOOK REVIEWS.

A PRACTICAL TREATISE ON OBSTETRICS. Vol. IV. Obstetric Operations. The Pathology of the Puerperium. By A. Charpentier, M.D., Paris. Illustrated with lithographic plates and wood engravings. This is also Vol. IV. of the "*Cyclopedia of Obstetrics and Gynecology*" (12 vols.), issued monthly during 1887. New York: William Wood & Company. Chicago: W. T. Keener.

Anything which even approaches in its nature a complete and critical review of so large and important a work as Charpentier's Obstetrics, is beyond the province of this journal, and general statements in this instance must suffice. Favorable mention has already been made of the preceding three volumes of this translation. This concluding volume only deepens the impression made by the former numbers.

The editorial notes have been a very important and acceptable addition to the text throughout the work, and this is strikingly true of volume IV. They make the book representative of the best opinion up to date, and save it from the charge that the original is already a little behind the times. This is one of the few books of which it may be truthfully said that no specialist interested in the subject, and no general practitioner can be without, and yet be fully posted in his line of work. One feature still deserves unmeasured condemnation: another edition with the present cuts would be unpardonable.

HANDBOOK OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS, including the Physiological Action of Drugs, the special Therapeutics of Disease, official and extemporaneous Pharmacy, and Minute Directions for Prescription-writing. By Samuel O. L. Potter, M. A., M. D., Professor of the Theory and Practice of Medicine in the Cooper Medical College of San Francisco: Author of *Quiz-Compends* of Anatomy and Materia Medica; *An Index of Comparative Therapeutics*, and *A Study of Speech and its Defects*. Late A. A. Surgeon, U. S. Army. Pp. xx, 828. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener.

As announced in the preface, the intention has been to produce a book which would embrace, in a single volume, the essentials of materia medida and therapeutics, such instruction in pharmacy as every physician should possess, and minute directions for prescription-writing.

Unfortunately the general style of the author's *Quiz-Compend* of Materia Medica is retained in this hand-book, which can be regarded only as a voluminous compendium of pharmacological, therapeutic and pharmaceutical data, in which, for the sake of brevity, all experimental processes and methods by which stated results have been ascertained, are omitted. For instance, the physiological action of digitalis on the heart is epitomized, merely, within a dozen lines, a treatment of the subject which is not commensurate with its importance.

As a sole reliance, the work is inadequate to the needs of students, because, like all compends, it appeals exclusively to the memory and furnishes no scope for assistance by exercise of the reasoning faculties.

Part II, treating briefly of pharmacy and prescription-writing, is a commendable addition.

Part III, pertaining to special therapeutics, is composed of an alphabetical list of diseases with a summary of the therapeutic indications in each. It is the customary index of diseases, extended and enlarged.

A section is appended embracing tables of Latin words and phrases used in prescription-writing, hypodermic formulæ, formulæ of patent medicines, the treatment of poisons, differential diagnosis notes on temperatures in disease, obstetrical memoranda, the treatment of asphyxia, as in drowning, clinical examination of urine, extracts from the code of ethics, etc., some of which miscellaneous information is *hors de propos*, but all of which is of a most useful and instructive nature.

As the work is systematically arranged, its statements reliable, and the index perfect, it will be serviceable for ready reference and review.

EVACUANT MEDICATION: Cathartics and Emetics. By Henry M. Field, M.D. Pp. vi. and 288. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener. 1887.

There are few subjects in the domain of internal medicine, usually considered as of minor interest, which are really of more practical importance than this. In our medical colleges it rarely, if ever, receives systematic attention, and the standard text-books do not give it comprehensive treatment. The recent medical graduate, if a conscientious prescriber, is hardly ever so much at a loss as in the choice of a cathartic for individual cases, and in no other aspect of his work

does the older practitioner have so great an advantage over him. The author's remark, that "popular and professional abuse of cathartics was never so great as now," is amply supported by the larger number and expensiveness of the advertisements of cathartic medicines. The author treats his subject in a systematic, thorough and very satisfactory manner, as the table of contents will demonstrate. Its divisions are: Introductory. EVACUANTS—No 1. CATHARTICS; Cholagogues, Mineral Cathartics, Differential Therapeusis, Cathartic Medication, General Principles. EVACUANTS—No. 2. EMETICS; Topical or Irritant Emetics, Emetic Medication, Arrest of Vomiting, and an Index which is complete and satisfactory.

A TEXT-BOOK OF HUMAN PHYSIOLOGY, INCLUDING HISTOLOGY AND MICROSCOPICAL ANATOMY, WITH SPECIAL REFERENCE TO THE REQUIREMENTS OF PRACTICAL MEDICINE. *By* DR. L. LANDOIS, *Second American edition, translated from the fifth German edition, with additions. By* WILLIAM STERLING, M. D., SC. D. *Pp. xxxix 922; 583 illustrations. Philadelphia:* P. BLAKISTON, SON & CO. *1886. Chicago:* W. T. KEENER.

This second translation of Professor Landois' "Lehrbuch der Physiologie des Menschen" is in many respects, an improvement upon the first. The same general arrangement has been preserved, but some of the chapters have been largely re-written, and for the most part improved. The translator has done his work well, having reached a happy medium, neither very closely imitating the text nor departing too widely from it. The work is not easy reading, the style being somewhat disjointed—a defect that is more apparent in the original than in the translation, and one that was unavoidable in crowding this amount of matter into a single volume of this size. A large number of authors have been consulted, and their names appear in the text. In fact, for almost every statement the authority is given, but not the reference. This is an unfortunate omission, as they could easily have been added in foot notes without materially increasing the size of the book. The work is too voluminous for the student of medicine, and for occasional reference in the library of the physician such foot notes would have been invaluable.

The arrangement of the work is admirable, being divided into sections, sub-sections and paragraphs, each one designated by double-face types; thus making it possible to pick out at a glance the precise subject on which information is sought, and rendering a reference to the index scarcely necessary.

For the use of the practicing physician it is one of the best books in the English language; for those just beginning their studies a smaller work would be better suited.

THE PRINCIPLES AND PRACTICE OF OPERATIVE SURGERY. *By* STEPHEN SMITH, A. M., M. D., *Professor of Clinical Surgery in the University of the City of New York, Surgeon to Bellevue Hospital, etc., etc. New and thoroughly revised edition. Pp. xxxii and 877. Philadelphia:* LEA BROTHERS & CO. *Chicago:* A. C. MCCLURG & CO. *1887.*

This work was first published in 1879, and has had eight distinct issues since; but this, being the first revised, is really the second edition. The revision has been thorough and complete, and it brings the book fully up with the latest approved measures in operative surgery. In preparing the text upon antiseptics and their employment, the author says that he has drawn freely upon the works of Cheyne and Von Hacker. This condensation has been admirably made, and the author's directions can be understood by any surgeon. It is gratifying to have a text-book in English on operative surgery which, without reserve, condemns as inexcusable all operative surgery which is not strictly aseptic. This edition is decidedly superior to its ambitious and excellent rival which has recently appeared, and which was reviewed in this journal.

DISEASES OF WOMEN. A hand-book for Physicians and Students. By DR. F. WINCKEL, of Munich. Authorized translation by J. H. WILLIAMSON, M. D., under the supervision and with an introduction by THEOPHILUS PARVIN, M. D. PHILADELPHIA: P. BLAKISTON, SON & CO. CHICAGO: W. T. KEENER. 1887.

This translation of Professor Winckel's handbook is a welcome addition to the treatises upon the subject in the English language. The standing of the author of the original is so well assured among his colleagues in Germany that he needs no eulogy here. The teaching of the book is eminently conservative, and in this reflects the growing tendency among the Germans. The treatment of the subjects discussed is clear, practical and thorough. The translation is excellent and the letter press very satisfactory. The book deserves a large sale among general practitioners and students.